A STUDY OF AGGRESSION, ACHIEVEMENT MOTIVATION, PERSONALITY TRAITS, SOCIO ECONOMIC STATUS AND MENTAL TOUGHNESS OF BASKETBALL PLAYERS OF HARYANA

A Thesis
Submitted for the award of the degree
Of
DOCTOR OF PHILOSOPHY
In
Physical Education and Sports

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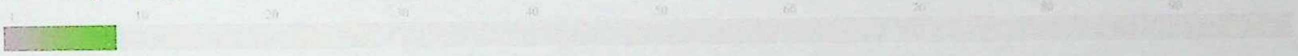

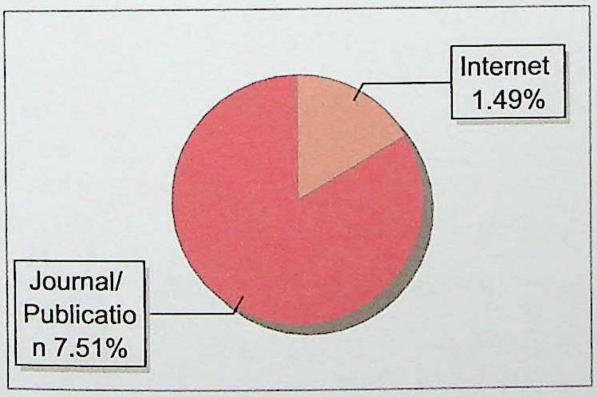

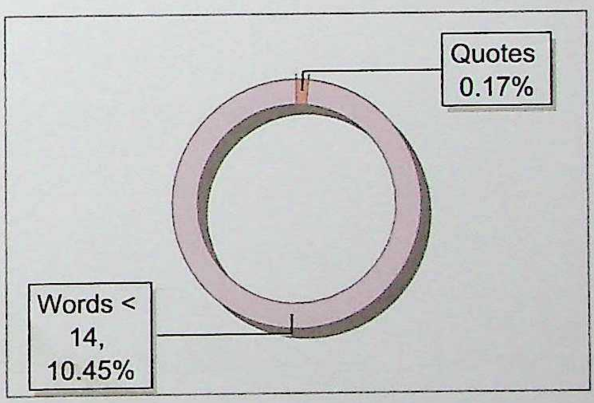

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TABLE of CONTENT

Chapters Page No.

I. INTRODUCTION... 01-13

- Statement of the problem
- Objectives of the Study
- Hypothesis
- Delimitation
- Limitation
- Significance of the Study

II. REVIEW OF RELATED LITERATURE……………...... 14-47

III. PROCEDURE………………… 48-58

- Selection of subjects
- Selection of variables
- Data Collection
- Criterion Measure
- Statistical Technique

IV. ANALYSIS OF DATA AND RESULTS OF THE STUDY 59-82

- Overview of the study
- Statistical analysis and result of data
- Discussion of Findings

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 83-94

- Summary
- Conclusions
- Recommendations

VI. Bibliography 95-112

List of Tables

S. N.	**Table Description**	Page No.
Table 1	Descriptive Statistics for Aggression	60
Table 2	Independent Samples T-Test and Levene's Test Results for Aggression	61
Table 3	Means, Standard Errors, and Confidence Intervals for Aggression	62
Table 4	Descriptive Statistics for Achievement Motivation	63
Table 5	Independent Samples T-Test and Levene's Test for Achievement Motivation	64
Table 6	Means, Standard Errors, and Confidence Intervals for Achievement motivation	65
Table 7.	Descriptive Statistics for Personality Traits	67
Table 8.	Independent Samples T-Test and Levene's Test for Personality Traits	68
Table 9.	Means, Standard Errors, and Confidence Intervals for Personality Traits	70
Table 10.	Descriptive Statistics for Socioeconomic Status	72
Table 11.	Independent Samples T-Test and Levene's Test for Socioeconomic Status	73
Table 12.	Means, Standard Errors, and Confidence Intervals for Socioeconomic Status	73
Table 13.	Descriptive Statistics for Mental Toughness	75

Table 14.	Independent Samples T-Test and Levene's Test for Mental Toughness	76
Table 15.	Means, Standard Errors, and Confidence Intervals for Mental Toughness	76

List of Figures

S. N.	**Figure Description**	Page No.
Figure 1.	Visualization of the mean of the Aggression variable through graphical representation.	63
Figure 2.	Visualization of the mean of the Achievement Motivation variable through graphical representation.	66
Figure 3.	Visualization of the mean of the Personality Traits variable through graphical representation.	71
Figure 4.	Visualization of the mean of the Socioeconomic Status variable through graphical representation.	74
Figure 5.	Visualization of the mean of the Mental Toughness variable through graphical representation.	77

CHAPTER- I

INTRODUCTION

CHAPTER - I

INTRODUCTION

Basketball occupies a significant place in the tapestry of Indian sports, drawing in a multitude of passionate young players who engage in the sport throughout the year. This dynamic team game, primarily played indoors but adaptable to outdoor settings, involves two teams, each comprising twelve players, aiming to outscore their opponents by skilfully shooting the ball into their basket.

The origins of basketball can be traced back to the late 19th century. Initially, basketballs were brown, but in the late 1950s, Tony Hinkle introduced the iconic orange basketball for better visibility, benefiting both players and spectators (Wilkes, G. 1997). Over time, basketball has grown into a global phenomenon, overseen by the International Basketball Federation (FIBA), boasting approximately 500 million registered participants across 201 national federations worldwide.

The allure of basketball lies in its fast-paced nature and versatility, making it one of the most thrilling team sports globally. In India, basketball enjoys widespread popularity, finding a place in schools, colleges, and universities. The sport has gained significant support among the younger generation, with both men and women of all ages and skill levels passionately embracing it.

Within India's basketball landscape, various government institutions sponsor teams, including ONGC in Uttarakhand, Indian Overseas Bank in Tamil Nadu, Indian Bank in Karnataka, Mahanagar Telephone Nigam Limited in New Delhi, Indian Railways, and Kerala Electricity Board. These teams not only represent their respective institutions but also compete at state and national levels.

India has produced a cadre of talented basketball players who have left their mark on the international stage, with Satnam Singh Bhamara being a prominent example as the first Indian player selected in the NBA during the 2015 NBA draft by the Dallas Mavericks. National and state-level basketball associations play pivotal roles in promoting the sport, developing infrastructure, and nurturing emerging talent across the country.

The roots of basketball can be traced back over a century to Dr. James Naismith, a Physical Education teacher at Springfield College, Massachusetts, who envisioned an indoor game suitable for the winter season, emphasizing motor skills over physical strength. His formulation of 13 fundamental rules laid the foundation for modern basketball.

International governance of basketball took shape in 1932 with the establishment of FIBA, initially overseeing amateur players. Basketball made its Olympic debut in 1936 in Berlin, solidifying its presence as a staple of the Summer Olympics since 1976, often dominated by the United States. Recent history has witnessed the ascent of the National Basketball Association (NBA) as the premier professional basketball league globally, renowned for its popularity, lucrative salaries, talent pool, and fierce competition. Women's basketball has also gained recognition, with its inclusion in the Olympics in 1976, reflecting the evolving and thriving nature of the sport.

Basketball's growth in India was catalysed by the YMCA in Calcutta around nine decades ago, quickly spreading to colleges, schools, and states nationwide. The Basketball Federation of India (BFI) was established in 1950 to oversee and promote the sport. Regular national and state-level competitions, coupled with grassroots development, have been instrumental in shaping India's basketball journey.

Today, basketball is celebrated in India for its fast-paced action, with players who maintain mental fortitude often achieving excellence in competition. The sport demands a delicate psychological balance, complementing the physical, mental, motor, cognitive, and physiological aspects of the game. Basketball provides ample opportunities for players to showcase their talents and potentially become national and international icons.

Aggression in Basketball:

Aggression is a frequently discussed topic in the realm of sports, particularly in basketball, where it is often associated with players excelling in various aspects of the game, such as rebounding, defence, and driving toward the basket. In sports, aggression entails the intent to gain an advantage or exert dominance over others, and it can manifest as psychological harm or other forms of disruptive behaviour, not solely physical harm or violence (Siann, 1985).

Broadly defined, aggression refers to behaviour aimed at causing harm or discomfort, whether psychological or physical, driven by an underlying motive. Not all actions resulting in harm are considered aggression, and it can be directed outward, targeting others, or inward, leading to self-destructive actions. Controlled aggression can enhance an athlete's performance, motivating them to put in extra effort for the team's success. However, managing and controlling aggression is crucial for players to perform calmly and effectively. Appropriate levels of aggression, within the rules of the game, can improve skills and overall performance, while excessive or inadequate aggression can hinder an athlete's performance.

Aggression is a fundamental aspect of human behaviour and is often intertwined with competitiveness. In sports, there are two main categories of aggression: hostile aggression, where the intent is to harm another person, and instrumental aggression, where the intent is to cause harm to an opponent in pursuit of a non-aggressive goal, such as winning (Bredemeier, 1975).

Various factors influence aggressive behaviour in sports, including the reward system within the sports culture. Athletes who witness others being praised and rewarded for aggressive behaviour may imitate it, leading to a cycle of aggression in sports. The potential for frustration in sports is high, and when combined with the reinforcement of aggressive behaviour by teammates, coaches, and parents, it can result in increased aggression on the field. Gender can also play a role in the expression of aggression in sports, with men tending to display more physical aggression, while women may exhibit aggression in a more playful manner. Aggression levels can vary, classified into collision sports (contact is integral), contact sports (contact is legal but not central), and non-contact sports (contact between opponents is not allowed).

While aggression is a part of sports, its relationship with self-esteem is complex. Some research suggests that high self-esteem is not necessarily associated with aggression, as it can be driven by narcissistic traits but doesn't necessarily correlate with self-esteem levels.

Achievement Motivation in Sports:

Over the last three decades, motivation studies in sports have adopted a social cognitive approach, with achievement goal theory playing a central role in understanding motivational factors in sports. Goals serve as cognitive representations of individuals' objectives in achievement-oriented situations, influencing their behaviour and cognition in various contexts, including sports, academics, and work.

Many researchers have explored motivation in physical education, particularly focusing on achievement motivation. One seminal figure in this area is Atkinson (1977), who considered motivation an integral construct. However, the foundation of motivation studies in sports and physical education lies in Goal Achievement Theory (Ames & Archer, 1987, 1988; Dweck & Legget, 1988; Maehr & Nicholls, 1980; Maehr, 1974).

Motivational research in sports psychology aligns with the achievement goal perspective. Nicholls (1984, 1989) introduced the Goal Perspective Theory, suggesting that individual achievement behaviour is shaped by their achievement goals. This theory distinguishes between task-oriented and ego-oriented goals. Task-oriented goals focus on self-referenced perceptions of ability and performance improvement, while ego-oriented goals emphasize standard-referenced perceptions of merit and winning compared to others.

Achievement motivation, rooted in the desire to strive for task success, hinges on the presence of an achievement motive that drives individuals to engage in tasks with a sense of achievement motivation. This motivation comes into play when individuals anticipate the evaluation of their performance, with outcomes categorized as either success or failure. Success leads to feelings of accomplishment, promoting an approach to tasks with the aim of succeeding. Motivation, according to Atkinson's perspective (1974), influences both task efficiency and persistence, with efficiency relating to task performance and persistence referring to the time spent on an endeavour. Therefore, motivation serves as the driving force behind an individual's actions, with McClelland's framework identifying three primary motivators: achievement, affiliation, and power. Achievement motivation involves a concern for "doing things better" and surpassing standards of excellence.

In the context of sports, achievement motivation is often equated with competitiveness, characterized by the desire to excel when compared to a standard of excellence, especially in the presence of evaluative others. Identifying athletes with high achievement motivation traits is crucial for coaches and trainers, as athletes with inherent motivation may require less psychological intervention.

Achievement motivation can be understood through the McClelland-Atkinson model, which considers two key constructs: the motive to achieve success and the fear of failure. The model posits that a person's willingness to engage in an achievement-oriented activity depends on the relative strengths of these two constructs. If the desire to participate outweighs the fear of failure, the individual is more likely to engage in the task. Achievement motivation is conceptualized as a series of relatively stable objectives or tendencies associated with specific tasks or situations, often remaining concealed (Spence and Helmreich, 1983).

Personality Traits in Sports:

Personality traits represent consistent patterns of thoughts, feelings, and behaviours in individuals. These traits provide stability and consistency to a person's life, implying that someone who scores high on a trait like Extraversion is expected to exhibit sociable behaviour across different situations and over time. The Five-Factor Model, a widely used system of traits, encompasses five broad traits: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (often remembered by the acronym OCEAN). Each major trait from the Five-Factor Model can be further divided into facets, offering a more detailed analysis of a person's personality. While the Five-Factor Model is a dominant framework, some argue that other traits not completely captured by this model influence personality. There is an ongoing debate within the field about the relative influence of traits versus situational factors on behaviour.

People possess personality traits that influence their thoughts, feelings, and behaviours. These traits provide stability and consistency in a person's life. The Five-Factor Model is a widely used system for understanding personality traits, encompassing Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (OCEAN). Critics of the trait concept argue that people do not consistently act the same way across different situations and are heavily influenced by their environment. Thus, there is a debate about whether traits or situational factors play a more significant role in shaping behaviour.

Socio-economic Status and Its Impact on Sports:

Socioeconomic status (SES) is a crucial factor influencing primary education, including elements such as occupation, income, wealth, home environment, educational opportunities, and social affiliations. SES reflects an individual's position in society, shaped by adherence to societal norms related to employment, income, caste, education, and consumption.

SES plays a significant role in sports, affecting a person's choice of physical activities, motivation for excellence, and overall success. Home environments often influence an individual's motivation to excel in sports, and success in sports can lead to a sense of internal satisfaction.

Children growing up in impoverished communities often lack access to sports facilities, such as tennis courts, swimming pools, or golf courses. They may also face challenges in accessing resources for activities like fishing, mountain vacations, and horseback riding. In contrast, middle-class children typically enjoy better access to physical education facilities, qualified coaches, and parental support, which can drive their motivation and sporting achievements.

A person's SES is determined by factors like family income, parental education, parental occupation, and social status within the community. Families with higher SES often provide better resources for their children's physical development, including high-quality child care, educational materials, and information related to health and cognitive development. The socioeconomic status of a family is closely linked to parental education and income, which influence the family's ability to provide resources and support for their children's development. In general, higher education and income lead to better socioeconomic status.

Social and economic factors significantly impact an individual's participation and performance in sports. These factors influence motivation, adjustment, and other psychological aspects of athletes. Socioeconomic status is an important aspect of a person's life, impacting various areas such as education, income, occupation, and housing. It is a key determinant of social and economic standing in society.

Mental Toughness in Sports:

Mental toughness is a critical attribute in the world of sports, encompassing the ability to regulate thoughts and actions while maintaining composure and focus, especially under the intense pressure of competitive environments (Brian Williams).

A comprehensive definition of mental toughness by Jones, Hanton, and Connaughton (2002) describes it as the innate or cultivated advantage that allows an athlete to navigate the multifaceted demands of sports, including competition, training, and lifestyle, more effectively than their counterparts. It entails being consistently resolute, focused, self-assured, and in control, particularly in high-pressure situations.

In contemporary elite sports, the difference between good and exceptional athletes is increasingly attributed to psychological characteristics, such as mental toughness, rather than physical disparities (Gould, Dieffenbach & Moffet, 2002). The quality of the game and the athletes involved has been a subject of contention. According to Bull and Shambrook (2004), quality gameplay requires quality players, and mental toughness plays a pivotal role in securing victories. Mental toughness encompasses psychological, emotional, and physical aspects that influence an athlete's behaviour both during competition and in daily life (Brown, 2001; John & David, 2001). Mental toughness is often described as a trait that enables individuals to withstand the challenges posed by competitive sports or adversity. Mentally tough athletes typically exhibit lower anxiety levels and an unwavering belief in their ability to control their destiny (Clough et al., 2002). This attribute is recognized as a key determinant of peak athletic performance (Williams, 1988; Gould et al., 2002) and sets apart winners from losers, as well as those who persist from quitters.

Various definitions of mental toughness exist in the literature. Tutko and Richards (1971) characterized mentally tough individuals as self-oriented individuals who accept criticism and failure without losing motivation. However, this description may not capture all facets of mental toughness. Loehr (1982) contends that mental toughness is the mediator of the mind-body connection and lists several characteristics of mentally tough athletes, including self-motivation, positivity, emotional control, calmness, high energy, determination, focus, self-confidence, and responsibility.

In essence, mental toughness is the ability to perform effectively under pressure (Loehr, 1982) and has been identified as a critical quality for competitive athletes (Gould et al., 1999; Loehr, 1982). The mentally tough athlete consistently performs at their highest potential, even in adverse conditions, a challenge that many athletes face, as they never know whether a given day will be a "good" or "bad" day.

Mental toughness is recognized as a multidimensional construct associated with successful sports performance (Crust, 2008). It has gained attention from sports psychology researchers and is considered a fundamental psychological factor contributing to success in sports.

Research Gap

While the introduction provides a comprehensive overview of various psychological and sociological factors related to basketball players in Haryana, it does not explicitly address the interplay and relationships among these factors. Specifically, there is a need for a detailed study that investigates how aggression, achievement motivation, personality traits, socioeconomic status, and mental toughness collectively impact the performance and success of basketball players in Haryana. Understanding the complex interactions among these variables can provide valuable insights into the psychological and social dynamics of basketball players and potentially inform strategies for talent development, coaching, and player support. Therefore, a research study that explores these multifaceted relationships within the context of Haryana's basketball players could significantly contribute to the field of sports psychology and athlete development.

Statement of the Problem

The research focuses on the challenges faced by basketball players in Haryana. Haryana boasts a rich reservoir of talented athletes, both at the junior and senior levels, particularly in the field of sports. The core problem addressed in this study is as follows:

An Examination of the Interplay between Aggression, Achievement Motivation, Personality Traits, Socioeconomic Status, and Mental Toughness among Basketball Players in Haryana.

Objectives of the Study

1. Investigate the relationship between the levels of aggression exhibited by male and female basketball players in Haryana.
2. Explore the connection between achievement motivation and male and female basketball players representing Haryana.
3. Analyze the link between personality traits and basketball players, considering gender, in Haryana.
4. Examine the correlation between socioeconomic status and basketball players in Haryana.
5. Investigate the association between mental toughness and basketball players, distinguishing between genders, in Haryana.

Hypotheses

1. There would be a substantial difference in aggression levels among basketball players in Haryana.

2. Significant differences would be observed in achievement motivation among basketball players in Haryana.
3. Variations in personality traits would be evident among basketball players in Haryana.
4. Noteworthy differences in socioeconomic status would be discernible among basketball players in Haryana.
5. Basketball players in Haryana was exhibit significant differences in mental toughness.

Delimitation

- This study exclusively involved sportspeople aged 18 to 25 years.
- The research encompassed both male and female student-athletes.
- The variables under consideration in this study were limited to the following:
  - ✓ Aggression
  - ✓ Achievement Motivation
  - ✓ Personality Traits
  - ✓ Socioeconomic Status
  - ✓ Mental Toughness
- The study focused on various categories of players, including Senior National, All India, Junior National, State Championships, and District Participation.

Limitations

- Factors such as lifestyle, resting periods, daily routines, family dynamics, and environmental influences were not incorporated into the analysis.
- Socioeconomic factors were not taken into account during the investigation.

Significance of the Study

- The research aims to uncover disparities in selected psychological aspects, including aggression, achievement motivation, personality traits, socioeconomic status, and mental toughness among basketball players from Haryana.
- It seeks to highlight variations in these psychological parameters among basketball players hailing from Haryana.
- The study's findings can offer valuable insights and guidance to coaches, physical education instructors, and athletes.
- This research contributes to the field of sports psychology, serving as a valuable resource for future studies and practical applications in the realm of sports.

CHAPTER- II

REVIEW OF RELATED LITERATURE

CHAPTER - II

REVIEW OF RELATED LITERATURE

Studies Related to Achievement Motivation

Upadhye et al. (2014) explored the psychosomatic aspects of achievement motivation and their impact on sports performance. This study involved 120 postgraduate students from Karnataka State Women's University, Bijapur, divided into two groups: 60 females from sports and 60 females from non-sports backgrounds, aged 20-25 years. The t-test was employed as a statistical tool to analyze the data. The results indicated a significant difference in achievement motivation between female sports and non-sports participants, with females in sports exhibiting higher motivation levels.

In **1977, Butler and Parasuraman** conducted research involving 85 undergraduate students enrolled in a junior-level management course at Indiana University. Their study cantered on team dynamics and its influence on team performance during a management simulation game named INTOP. Interestingly, their findings indicated that variations in team composition based on levels of achievement motivation did not exert a significant impact on team behaviour or performance.

Advancing to **1996, Hayashi** delved into the subject of cross-cultural perspectives on achievement motivation. He investigated how Hawaiian and Anglo-American weightlifters perceived physical activity through the lens of task and ego goal orientations. Task-oriented individuals derived satisfaction from personal improvement and skill mastery, while ego-oriented individuals associated success with winning and public recognition. Furthermore, Hayashi identified an interdependent perspective present in both Hawaiian and Anglo-American cultures, where individuals sought to connect with others, adhere to group norms, and demonstrate commitment to their in-groups.

In the year **2000, Kanupriya Sachdeva** explored achievement motivation patterns among female volleyball players participating at different competition levels: college, inter-college, and inter-university. Her study revealed that university-level players exhibited notably higher levels of achievement motivation in comparison to inter-college players, while performance and participation motivation did not exhibit significant differences among these groups.

In another study spanning a six-month rugby season, **Tod and Hodge (2001)** conducted interviews with eight male under-21 rugby union players on three occasions. They explored the link between moral reasoning and achievement motivation in the realm of sports. The research indicated that individuals' levels of moral reasoning seemed to influence their orientations toward achieving goals in sports.

In **2001, Fontayne, Sarrazin, and Famose** conducted a qualitative comparative study examining culture and its influence on achievement motivation among adolescents from Maghrebian and European French backgrounds. They observed that, for French teenagers, sports held the highest significance as a domain for achievement, surpassing other domains such as school, leisure activities, music, or painting.

Unierzyski (2003) conducted research involving 185 tennis players divided into two groups: those who achieved international levels between the ages of 18-20 and those who did not. The study showed that players who attained international status displayed markedly higher levels of achievement motivation compared to those who did not.

In **2007, Yadav, Tripathi, and Dutt** examined achievement motivation and the factors influencing the sports careers of 96 male university badminton players participating in the All-India Inter-Zonal University Badminton Tournament. Their findings indicated moderate levels of achievement motivation among the players, with a greater reliance on internal factors rather than external factors affecting their sports careers.

Kaur, Sharma, and Dureha (2007) explored the relationship between achievement motivation and pre-competition anxiety among male inter-university hockey players. The study involved 50 male hockey players participating in the All-India Interuniversity Hockey Championship 2007. Their research revealed a significant association between achievement motivation and pre-competition anxiety levels.

Thakur and Mohan (2008) assessed the personality traits, anxiety, and achievement motivation of volleyball players and non-sportsmen. Their study, encompassing 360 individuals, found that high-performance groups exhibited superior levels of achievement motivation compared to non-sportsmen.

Ahmadi, Namazizadeh, Abdoli, and Seyed (2009) compared achievement motivation and its components among soccer players from high and low-ranking teams in the Iranian Super League. While a significant difference was observed in the "win orientation" variable, other factors, including overall achievement motivation, competitiveness, and goal orientation, did not exhibit significant distinctions between the two groups.

Singh and Khan (2010) conducted a comparative study on sports achievement motivation between male and female students majoring in physical education. Their findings indicated the absence of a significant gender difference in sports achievement motivation.

Schorer, Khan, Haider, and Ahmed (2010) explored achievement motivation among male and female basketball players from Aligarh Muslim University. Their research did not detect any significant gender-based disparities in achievement motivation.

In 2010, **Kumar and Chandrappa** scrutinized the influence of socio-cultural deprivation on achievement motivation among both sportsmen and non-sportsmen. The study disclosed that low-deprivation groups exhibited higher levels of achievement motivation when compared to high-deprivation groups. Furthermore, the research revealed that achievement motivation levels were more elevated among sportsmen as opposed to non-sportsmen, with urban students displaying higher achievement motivation than their rural counterparts.

Mudimela (2010) conducted a study to investigate the impact of participation level on psychological factors, such as aggression, anxiety, achievement motivation, and performance, among soccer players. The results unveiled significant differences across participation levels for aggression, achievement motivation, and performance. Remarkably, aggression and achievement motivation exerted significant effects on performance, while anxiety had an adverse influence.

Dureha, Singh, Yaduvanshi, and Mishra (2010) undertook a comparative analysis of the psychological status of national and international hockey players. Their research disclosed a significant disparity in sports competition anxiety between national and international players. Nevertheless, no significant differences were observed in incentive motivation, achievement motivation, state anxiety, or trait anxiety.

Mishra (2010) delved into the examination of anxiety, aggression, and achievement motivation among university Kho-Kho players from different universities. The study unveiled varying levels of achievement motivation among universities, with M.G.K.V.P., Varanasi, exhibiting the highest performance. However, the order of performance across universities differed concerning achievement motivation.

Ali, Hussain, and Rahaman (2010) executed a comparative analysis of aggression and sports achievement motivation between senior and junior male national hockey players in Manipur. Their research did not identify significant disparities in sports achievement motivation or sports aggression between the two groups.

Khan, and Ahmed (2010) scrutinized the achievement motivation levels of Asian players. Their findings highlighted that the majority of Asian players possessed high levels of achievement motivation, underscoring its significance in their pursuit of sporting endeavours.

Reddy and Singh (2010) embarked on an exploration of sports achievement motivation among tribal female sports achievers, non-achievers, and non-participants. The study unearthed that sports achiever exhibited elevated levels of sports achievement motivation compared to non-achievers and non-participants.

Singh, Ahmed, and Hussain (2010) conducted a comparative analysis of sports achievement motivation between male and female badminton players participating in the North Zone Interuniversity Badminton Championship. Their findings did not reveal significant gender-based disparities in sports achievement motivation.

Kannur, Reddy, and Reddy (2010) delved into the examination of academic achievement motivation and aggression levels among M.P.Ed. and M.Ed. students. The research unveiled that achievement motivation was more pronounced among M.P.Ed. students in comparison to M.Ed. students.

Ali (2010) scrutinized the relationship between sports achievement motivation and the performance of male badminton players. The study did not discern significant differences in sports achievement motivation between high and low performers.

Sisodiya and Purashwani (2011) investigated the correlation between achievement motivation and anxiety among male and female badminton players participating in the West Zone Inter-University Badminton Tournament. The results indicated a lack of a significant correlation between achievement motivation and anxiety.

Maleki, Mohammadzadeh, SeyedAmeri, and Sani (2011) explored the connection between self-esteem and achievement motivation among successful and unsuccessful athletes in West Azerbaijan Province. Their research established a notable correlation between self-esteem and achievement motivation, with successful athletes exhibiting higher levels of both in comparison to unsuccessful athletes.

Review of Studies on Personality Traits

Panama, et al. (2017) conducted a study examining the personality traits of athletes both as individuals and as part of a team. The study assessed various personality characteristics, including extraversion, psychosomatic toughness, sociability, dominance, and emotional stability. The research methodology employed for this investigation was descriptive. The study involved a total of 50 players, divided into two equal groups: 25 individuals and 25 team players. Data for the research was collected using a scale developed by Dr. Ajit Singh, and participants were selected from those who had participated in an intervarsity tournament at the All-India level. The collected data underwent statistical analysis using the t-test. The study's findings indicated that team players exhibited higher levels of sociability in their personality traits compared to individual players, suggesting that this characteristic was developed through teamwork.

Ali (2019) conducted a study to explore the influence of personality traits on individuals' innovativeness and life satisfaction perceptions. Personality traits were considered as indicators of how individuals navigate various situations and work environments. The study involved 613 respondents who were students enrolled in master's, PhD, and executive programs at multiple universities in Pakistan. The research revealed that agreeableness, openness to experience, extraversion, and conscientiousness had a significant positive impact on individual innovativeness and life satisfaction. However, neuroticism was found to have a negative influence on life satisfaction and innovativeness among the students.

Conlin (2017) investigated the role of personality traits in investors' decision-making in the stock market. Personality traits were identified as factors influencing specific investment decisions. The research showed a positive correlation between personality traits and individuals' investment preferences. Personality traits were found to have a consistent and significant impact on stock market participation and the choice of investment amount. Emotional and socially inclined investors tended to favor small capitalization value stocks, while extraverted individuals preferred large capitalization stocks. Sentimentality and extravagance were associated with reduced stock market participation.

Khan (2017) defined personality traits as enduring personal attributes that manifest consistently across various situations, influencing behaviour patterns, emotions, and cognition. Personality traits were recognized as important in the competitive organizational world, impacting individuals' attitudes, expectations, behaviours, emotions, and perceptions of others. The Big Five personality model, consisting of neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience, played a significant role in various domains. Conscientiousness and emotional stability were identified as predictors of job performance.

Judge and Ilies (2016) emphasized the significance of the "Big Five" personality model in analysing independent dimensions of personality among individuals. The model included agreeableness, extraversion, conscientiousness, neuroticism, and openness to experience, which helped shape personality constructs. Openness to experience represented interests, extraversion related to sensory stimulation, agreeableness depicted norms of right behaviour, conscientiousness reflected goal-oriented behaviour, and neuroticism measured response to negative stimuli.

Ejavec et al. (2016) examined how personality traits and domain knowledge affected decision-making in the global business environment. The Big Five personality traits model was employed, encompassing agreeableness, neuroticism, extraversion, conscientiousness, and openness to experience. The study found that confidence positively influenced decision quality, while agreeableness and neuroticism negatively impacted employees' confidence in decision-making. Extroverts also exhibited lower confidence levels. Self-reported knowledge was positively associated with decision-making confidence.

Ongore (2014) investigated the association of personality traits with job engagement, defining personality traits as a broad structure consisting of five factors: agreeableness, openness to experience, extraversion, conscientiousness, and neuroticism. The study, involving academic and administrative personnel at Kastamonu University, revealed that agreeableness, openness to experience, extraversion, and conscientiousness were significantly related to job engagement, while neuroticism was negatively associated with emotional, cognitive, and physical engagement. Openness to experience and agreeableness were identified as predictors of job engagement.

Rossberger (2014) emphasized the continued relevance of personality traits in various domains, including business, citizenship culture, and academic research. The "Big Five" personality traits model was highlighted as a widely recognized approach, encompassing extraversion, agreeableness, neuroticism, conscientiousness, and openness to experience. The study underlined the importance of considering these personality traits when selecting employees for organizations in the rapidly changing global business environment.

Youn and Fumio (2014) analysed the impact of non-cognitive skills, such as risk aversion rate, time discount rate, and confidence, measured by the Big Five personality traits, on individuals' career promotion and earnings. Personality traits were seen as potential predictors of variance in the human capital market. The study found that personality traits were predictive of measures of intelligence and intellect in assessing human capital. Extraversion and emotional stability were identified as significant predictors of female earnings, while conscientiousness predicted male earnings.

Arthaud-day et al. (2012) examined the direct and contextual effects of personality traits on organizational citizenship behaviour. Personality traits were described as tendencies that create consistent patterns in an individual's feelings, thoughts, and actions. The study revealed that personality traits had the strongest impact in ambiguous situations with varying experiences and weak performance incentives. All personality traits, except neuroticism, positively influenced organizational citizenship behaviour.

Boyle (2010) emphasized that personality traits are enduring dispositions in individuals' approaches, responsiveness, and behaviours in various situations and environments. These traits are recognized as constant and stable characteristics that persist over time. The study noted the increasing importance of personality traits in recent decades and their role in shaping human behaviour in different external environments. Personality traits were seen as foundational to present and future opportunities.

Singh and Singh (2009) defined personality traits as patterns of emotions, behaviours, and thoughts that explain an individual's behaviour across different situations. The study identified five major dimensions of personality traits: emotional stability, assertiveness, cooperativeness, stress tolerance, and hard work. These traits influenced personal and social interactions, employer-employee relationships, and organizational security. Openness to experience, conscientiousness, agreeableness, neuroticism, and extraversion were major personality traits that contributed to variations in human behaviour.

Robbins and Judge (2009) highlighted the "Big Five" personality traits model, consisting of extraversion, agreeableness, emotional stability, conscientiousness, and openness to experience. These dimensions were essential in understanding individual behaviour. Personality traits were viewed as mediators between organizational citizenship behaviour and active personality. In a rapidly changing work environment, organizations aimed to hire employees with appropriate personality attributes that influenced their organizational citizenship behaviour.

Schultz and Schultz (2009) characterized personality traits as fundamental, generic factors linked to efficacy, thoroughness, and reliability that govern individual behaviour. These traits were seen as vital to understanding how individuals interact with and adapt to the external environment. The "Big Five" personality traits—extraversion, agreeableness, emotional stability, conscientiousness, and openness to experience—played a central role in employee selection and performance evaluation.

Colquitt et al. (2009) described personality traits as enduring characteristics that influence an individual's feelings, thoughts, and behaviours. These traits provided insights into human variables and attributes that remained consistent over time. Personality traits were significant predictors of various work-related criteria in diverse and advanced work environments. Openness to experience, conscientiousness, agreeableness, neuroticism, and extraversion were key components of personality traits that influenced job performance and employee capabilities.

Wen (2008) examined the relationship between major personality traits (leadership, socialness, and innovativeness) and employment factors. Personality traits were considered as reflections of human variables and characteristics that remained stable over time. The study, involving 170 college students in Taiwan, found that male respondents exhibited higher levels of socialness and innovativeness compared to female respondents. Socialness was associated with future career orientation and opportunism. The study suggested providing assistance to females to adapt to the external environment effectively.

Studies on Socio-economic Status and Sports:

Lureshi (1987) conducted a study involving 314 university women players from various universities in Tamil Nadu to assess the socio-economic status of women participating in sports like Valley Ball, Badminton, Shuttle Badminton, Table Tennis, Kabaddi, and Athletics during the academic year 1989-90. Through a questionnaire, Lureshi found that university women players often chose their sports based on their community area, their parents' profession, and their parents' income. Socio-economic status was identified as an influencing factor in their choice of sport and subsequent sports performance.

Young (1989) investigated the significance of physical activity in relation to age, sex, education, and socio-economic status in the northern United States. His study indicated that while active participation in physical activities and attendance at sporting events were not major life interests for most adults, broadcasting of sporting events was a significant life interest for a majority of adults in northern states. The study revealed varying relationships between physical activity, attitude towards sports, and socio-economic status.

Karuppain (1990) explored the association between socio-economic status and participation in sports and games among 629 university players. The analysis revealed that an individual's socio-economic status influenced their opportunities for participating in sports and games. Additionally, it was observed that individuals from economically disadvantaged backgrounds tended to play sports with lower associated costs, while those from higher-income backgrounds participated in sports with higher expenses.

Cratty (1967) observed the influence of economic circumstances on the availability of sports equipment and facilities. The study found a positive relationship between family income, play yard size, the number of play equipment pieces, and activity level. Socio-economic status played a vital role in the development of sports activity and performance.

Suidontop (1984) highlighted the impact of social status on the acquisition of motor skills. The study noted that social approval facilitated performance, particularly among lower-status families, while disapproval affected middle-status families. Socio-economic background directly influenced the acquisition of motor skills in sports.

Reason (1978) analysed the social stratification system in Belgium and identified sports preferences associated with different social classes. The study categorized sports into higher, lower middle, and lower-class sports, shedding light on class-based sports preferences. Sorenson (1954) discussed how a higher socio-economic level enabled parents to provide better nourishment and encouragement to their children. These children exhibited more confidence, social poise, and dominance, with a greater interest in music and the arts. Social and economic privilege influenced children's behaviour and self-assurance.

Gill (1990) investigated the socio-economic status, adjustment, and creativity of successful physical education teachers. The study involved 617 physical education teachers from different secondary schools in Punjab. The results indicated significant differences in adjustment variables between successful and less successful teachers.

Male physical education teachers were found to be better adjusted and more original than their female counterparts. Teachers from government schools excelled over private school teachers in terms of adjustment, socio-economic status, and creativity.

Mathuraman (1990) focused on 420 district-level school Kabaddi players in Tamil Nadu during the academic year 1989-90. The study aimed to determine the socio-economic status of these players. It was found that 45 percent belonged to scheduled communities, 44 percent to backward communities, and 89 percent to lower-class communities.

Minner (1991) examined 114 boys and 107 girls in the 6th grade to identify factors contributing to total physical fitness. The study utilized the California Physical Performance Test and questionnaires. Factors related to the background of physically able children and their social class were found to contribute to physical fitness.

Nelson (1991) assessed the attitudes towards sports of 40 male students in grades VII through X. The study explored the relationship between sports participation, attitude towards sports, socio-economic status, and self-concept. While there were limited significant findings, one notable result indicated that youth who had played sports had a more favourable attitude towards sports, especially those from white-collar backgrounds.

Kumar and Singh (1991) studied 70 senior wrestlers undergoing national coaching for the Asian Games in 1990. The wrestlers came from a middle-economic status group of Indian society based on a socio-economic status questionnaire.

Sharma (1994) compared non-sportsmen and university representing sportsmen in terms of personality, self-concept, intelligence, and socio-economic status. Cricket sportsmen scored significantly higher on the academic status dimension of socio-economic status compared to sportsmen from other groups. Football sportsmen scored the highest on the social status dimension.

Stone (1996) examined the significance of race and socio-economic status on physical performance. The study compared Negro and white boys in various physical tests, finding that socioeconomic status had a notable impact on softball throw performance.

Mehra (1996) investigated the socio-economic status of team members in different sports, finding differences among members of Basketball, Athletics, Hockey, Cricket, and Football teams.

Satywati (2004) conducted a comparative study on physical fitness and attitudes towards physical education and sports among senior secondary school girls in Delhi University, considering their socio-economic status. The study revealed significant differences in physical fitness and attitudes among students from different socio-economic backgrounds.

Gidlow (2006) and his team conducted a systematic review of the relationship between socio-economic position (SEP) and physical activity in adults. They found evidence that those at the top of the socio-economic scale tended to engage in more leisure-time physical activity compared to those at the bottom.

Kamphuis C. B. (2008) and his team examined the contribution of neighbourhood, household, and individual factors to socioeconomic inequalities in sports participation. They found that unfavourable perceived neighbourhood factors, household factors, and individual physical activity cognitions were associated with lower sports participation among lower socio-economic groups.

Chandrasekaran et al. (2010) analysed the playing ability of state-level football players based on socio-economic status and psychological factors (anxiety and aggression). The study indicated that education, occupation, and income influenced the Chennai Team's high-level performance.

Ahmad, Dureja, and Singh (2011) compared the social attitude and socio-economic status between physical education students in Punjab and Jammu Kashmir states. They found no significant differences in social attitude and socio-economic status between the two groups.

Sandeep U, Prasanna B. K., and Nagalingappa (2013) examined the influence of socio-economic conditions on the achievement motivation of 400 participants in various sports in Karnataka. The study found that lower socio-economic status individuals exhibited higher achievement motivation.

Kumari P. and Deshmukh M. (2013) compared the socio-economic status of Kabaddi and Football players participating in inter-college competitions. While there was no significant difference in social status, there were differences in economic and overall socio-economic status.

Sharma (2015) investigated the effect of socio-economic status on the sport performance of junior national-level weightlifters, finding a positive relationship between socio-economic status and sport performance.

Nadakatti and Malipatil (2015) explored the influence of socio-economic conditions on aggressive behaviour among sportspersons. They found significant differences in aggressive behaviour between high and low socio-economic status individuals.

Gayathramma and Martin (2016) assessed the socio-economic status of university Volleyball players in Karnataka. The majority of players belonged to the middle socio-economic status group.

SH and Malipatil (2016) studied the influence of socio-economic status on the achievement motivation of sportswomen. Low socio-economic status sportswomen exhibited higher achievement motivation.

Kodli (2016) investigated the effect of socio-economic status on the physical fitness of sports persons in Bidar Taluka. The study revealed a positive effect of socio-economic status on physical fitness.

Singh (2018) conducted a study on the socio-economic status's effect on sport performance among Achiever and Non-Achiever Shooters in Punjab State. The study found that socio-economic status had a significant impact on the sport performance of shooters.

Jamwal and Tiwari (2018) explored the relationship between socio-economic status and sports performance among athletes from ICSE board schools in Mumbai. The study found significant positive relationships between various components of socio-economic status and sports performance.

Study on Aggression

Kandu (2015) conducted a comparative study between handball and basketball university-level male players, focusing on sports achievement, motivation, and sports aggressive apprehension. The study included 50 male players, with 25 from each sport (handball and basketball) representing a private college in Rohtak. Sports Achievement Motivation Test (SAMT) and Sports Competitive Anxiety Test (SCAT) by M.L. Kamlesh were utilized to measure achievement motivation and aggressive apprehension, respectively.

Khan et. al., (2015) investigated the levels of aggression and psychological toughness among male and female basketball players participating at the All-India Interuniversity level. The study involved 100 participants, equally divided into two gender groups (50 males and 50 females). To collect data on both variables, questionnaires were employed: the Aggression Inventory developed by Srivastava (1984) for aggression level and Mental Toughness constructed by Goldberg (1995) for psychological toughness. Data analysis included mean, t-test, and standard deviation, revealing no significant difference in the psychological toughness and aggression levels between male and female All India Interuniversity players.

Mohammad & Ahsan (2015) conducted a study to assess the levels of aggression among physical education students in relation to gender and ethnicity. The research involved 80 randomly selected physical education students from Lautoka Campus, Fiji National University (FNU), FIJI. All participants willingly took part in the study, with ages ranging from 20 to 34 years. The research employed the Buss Perry Aggressiveness Questionnaire, consisting of 29 items answered on a 5-point Likert scale. Statistical analysis was performed using IBM SPSS Statistics 22 software, utilizing the paired two-tailed t-test at a significance level of 0.05. The findings indicated that females exhibited higher levels of aggression compared to males, and Fijian students demonstrated greater aggression compared to I-Taukei physical education students. Consequently, these distinct analytical values for variables predicting students' aggressiveness can be beneficial for preventive measures and support services within psychological counselling and guidance studies.

Hasan, M., Singh, A. K., & Singh, J. (2015) conducted a study comparing aggression among female field hockey players in India at three different competition levels. The study included 150 female Indian field hockey players across various competition levels, with ages ranging from 16 to 27 years. The study created three strata based on competition levels: inter-collegiate, north-zone intervarsity, and all India intervarsity hockey players. A proportionate stratified random sampling technique was employed, with 50 participants selected for each stratum.

Aggression was measured using the sports aggression test inventory developed by **Kumar S. A. and Shukla P. S. (1988).** One-way Analysis of Variance (ANOVA) was used to examine significant differences among the three competition levels, and post-hoc tests were utilized to explore patterns of differences. The study found significant differences in aggression levels among inter-collegiate, north-zone intervarsity, and all India intervarsity level female field hockey players, emphasizing the importance of aggression as a psychological factor influencing performance.

Teng et al. (2015) conducted a meta-analysis study to investigate the relationship between aggression and self-esteem among Chinese students. The study included 82,358 Chinese student participants selected randomly. Meta-analysis results revealed a moderate negative correlation (r= -.21, 95% confidence interval [-.23, -.17]) between aggression and self-esteem. Sub-factor analyses indicated negative correlations between self-esteem and various aggression subtypes, excluding verbal aggression. These findings support the traditional perspective that lower self-esteem is linked to higher aggression.

Muthu A, Jayanth V, and Sakthiganavel D (2014) explored the impact of psychological variables on women's sports participation between Anna and Pondicherry Universities at different levels. The study randomly selected 300 women players from Anna University in Tamil Nadu State and 300 players from Pondicherry University in Pondicherry State, India. The subjects completed a questionnaire assessing their sports participation, anxiety, aggression, and stress levels. Statistical analysis involved 3 levels (zonal, inter-zonal, and university participation) and a factorial analysis of the two universities (Anna and Pondicherry). The results indicated significant differences in selected psychological factors among different levels of women sports players, although stress did not significantly differ. Furthermore, there were no significant differences in anxiety, aggression, and stress between players from Anna and Pondicherry Universities. The study concluded that anxiety, aggression, and stress play pivotal roles in women players' participation levels.

Ioannis et al. (2014) examined the impact of athletic identity on social behaviour and aggression during school basketball games and its predictive value for such behaviours. The study involved 156 students (86 boys and 70 girls) participating in a school basketball tournament at Anatolia College. Various questionnaires assessed athletic identity, pro-social and antisocial behaviour, as well as aggressiveness and anger. Statistical analysis included t-tests, mediation analysis, and correlation analysis. Findings showed that athletic identity influenced antisocial and aggressive behaviours and could predict such behaviours. The study also revealed significant differences between boys and girls regarding identity, antisocial behaviour, and aggression, with boys exhibiting higher scores.

Raju G. P., Johnson P., & Rao B. N. (2014) examined differences in psychological variables, including aggression, group cohesion, and self-concept, among South Zone senior volleyball women players. The study included 60 female volleyball players from different states in South India participating in the Senior South Zone National Volleyball Championship in 2013. Various psychological testing techniques, including aggression questionnaires, were employed, and data were analysed using ANOVA and Scheffe's procedure. The results showed significant differences among the teams of subjects in terms of aggression, group cohesion, and self-concept, emphasizing the importance of psychological factors in sports performance.

Kumar G.G. & Krishna Y. G. (2014) investigated anxiety and aggression differences among college male basketball, cricket, and Kabaddi players. The study included 90 college male players from Hyderabad, India, divided into three groups: basketball, cricket, and Kabaddi players. The subjects' ages ranged from 18 to 28 years. Anxiety and aggression were assessed using Rainer Marten's sports competition anxiety test questionnaire and Smith's aggression test questionnaire, respectively. Analysis of variance (ANOVA) was used to examine significant differences among the groups. The study revealed significant differences among the three groups in terms of anxiety and aggression, highlighting the role of psychological variables in sports performance.

Peter V. F. (2014) compared selected psychological variables among female field hockey players competing at different competition levels. The study randomly selected 50 female hockey players from All India Inter-varsity and 50 players from National level competition. The study utilized questionnaires to assess aggression and group cohesion. T-ratio statistics were employed to analyze the data, and the study found significant differences between the two competition levels.

Gurdeep et al. (2013) conducted a comparison of sports aggression between basketball and volleyball female players at the University of Lucknow. The study included 40 female players (20 basketball and 20 volleyball) from the University of Lucknow. The aggression questionnaire, developed by Prof. Anand Kumar Srivastava and Prem Shaker Shukal, was used to assess aggression. The results indicated no significant difference in sports aggression between basketball and volleyball female players at the University of Lucknow.

Samira et al. (2013) aimed to analyze and compare aggression between male and female athletes in different sports (volleyball, football, judo, and Wushu) and across two age groups (young and adult). The study surveyed participants using the aggression questionnaire of Bredemeier, which included three subscales: instrumental, hostile, and general aggression. The results, analysed through multivariate analysis of variance (MANOVA), showed significant differences in aggressive behaviour between young and adult athletes, with young athletes displaying higher aggression levels. Male athletes were found to be more aggressive than female athletes, while there was no significant difference in aggression between male and female adult athletes.

Kumar R. (2013) identified and compared aggression and anxiety among inter-collegiate and inter-university level cricketers. The study randomly selected 60 male cricketers from Delhi University and Lovely Professional University (Punjab), with ages ranging from 18 to 25 years. Comprehensive anxiety and aggression questionnaires were administered to assess anxiety and aggression levels. The study employed descriptive statistics and an independent t-test to analyze the data. The findings revealed that inter-collegiate cricketers exhibited significantly higher aggression levels than inter-university cricketers, although no significant differences in anxiety levels were observed between the two groups.

Abdulkadir Y, Orhan (2013) conducted a study investigating aggression levels among youth soccer players in Turkey. The research involved 142 male youth soccer players aged between 14 and 19 years. Participants completed the Buss-Perry Aggression Questionnaire, which assesses physical aggression, verbal aggression, anger, and hostility. The results of the study indicated that youth soccer players in Turkey exhibited higher levels of aggression compared to the norms of American youth. Furthermore, age and playing experience were found to be significant predictors of aggression among the participants.

Singh, Nishan, & Malkit (2012) aimed to compare aggression and anxiety among male and female sports players in Punjab, India. The study included 60 male and 60 female sports players from different colleges in Punjab, with ages ranging from 18 to 28 years. Participants completed the sports aggression questionnaire and the sports competition anxiety test. The results of the study revealed that male sports players exhibited higher levels of aggression compared to female sports players. Additionally, male players had higher levels of cognitive anxiety, somatic anxiety, and self-confidence compared to female players.

Kanchana R., & Rajendran (2012) examined the differences in aggression levels among male and female university-level athletes in Tamil Nadu, India. The study included 60 male and 60 female university-level athletes, with ages ranging from 18 to 25 years. Participants completed the Buss-Perry Aggression Questionnaire to assess aggression levels. The findings of the study indicated that male university-level athletes exhibited significantly higher levels of aggression compared to female athletes.

Raju & Sadhasivam (2012) conducted a study to compare aggression levels between male and female intercollegiate basketball players. The study included 80 intercollegiate basketball players (40 males and 40 females) from Tamil Nadu, India, with ages ranging from 18 to 28 years. Participants completed the Buss-Perry Aggression Questionnaire, and the data were analysed using the independent samples t-test. The results of the study revealed that male intercollegiate basketball players exhibited significantly higher levels of aggression compared to female players.

Athisayanathan V., & Murugavel V. (2012) investigated the aggression levels of college-level female volleyball players. The study included 60 female volleyball players from colleges in Tamil Nadu, India. Participants completed the Buss-Perry Aggression Questionnaire, which assesses physical aggression, verbal aggression, anger, and hostility. The findings of the study indicated that college-level female volleyball players exhibited moderate levels of aggression.

Doraisamy, J. V. (2011) examined aggression and aggression control among Indian college-level athletes. The study included 200 male and female college-level athletes from Tamil Nadu, India, with ages ranging from 18 to 28 years. Participants completed the Aggression Scale and the Aggression Control Scale. The results of the study revealed that male athletes exhibited higher levels of aggression compared to female athletes, and male athletes also had lower aggression control scores compared to female athletes.

Suriya S. P. L., & Ravindra T. (2011) investigated aggression among university-level sportsmen and non-sportsmen. The study included 200 university students (100 sportsmen and 100 non-sportsmen) from Tamil Nadu, India, with ages ranging from 18 to 25 years. Participants completed the Buss-Perry Aggression Questionnaire. The findings of the study indicated that university-level sportsmen exhibited significantly higher levels of aggression compared to non-sportsmen.

Study on Mental Toughness

In a study conducted by **Roberta et al. (2016),** the researchers investigated the perspectives of elite rugby players regarding how their coaches contribute to the development and maintenance of their mental toughness. They interviewed seventeen elite rugby players from the Swiss National Rugby Team individually. The qualitative analysis, based on personal construct psychology, revealed three key dimensions of the coaches' role: expertise, instruction, and development. The findings indicated that the coach-athlete relationship and interactions play a crucial role in nurturing mental toughness, with coaches having a significant impact during the development stage when athletes look up to their coaches as models for improving their mental toughness.

Khan, Z., Ali, A., & Ahmed, N. (2015) conducted a study comparing the aggression and mental toughness of male and female basketball players participating in the All-India Intervarsity tournament. They randomly selected 150 players (50 men and 50 women) and used standardized aggression and mental toughness questionnaires for data collection. The results, analysed using descriptive statistics and t-tests, showed no substantial significant difference in mental toughness and aggression between male and female basketball players in the All-India universities.

Baljinder Singh Bal et al. (2014) aimed to explore the role of mental toughness in the performance of body contact sports. They selected 125 male inter-college level body contact sport athletes aged 19 to 25 as study subjects. Using the mental toughness battery developed by Goldberg (2004), the researchers found significant differences among body contact sports in terms of ability to handle pressure, motivation, and overall mental toughness. Handball players demonstrated superior ability to handle pressure, while football players showed better motivation and overall mental toughness compared to athletes in other body contact sports.

Guillen, F., & Laborde, S. (2014) sought to determine differences in mental toughness between athletes and non-athletes. Their study involved 927 athletes and 931 non-athletes who completed questionnaires assessing four characteristics of mental toughness: hope, optimism, perseverance, and resilience. The researchers found that athletes scored higher in mental toughness than non-athletes, supporting the idea that mental toughness is a higher-order construct encompassing various characteristics and that participation in sports is associated with higher mental toughness.

Rubina & Masum (2014) investigated the relationship between mental toughness and performance in elite and sub-elite tennis players in Pakistan. The study included 118 participants and employed the Psychological Performance Inventory Alternative (Golby et al., 2007) to measure mental toughness. Findings indicated that seasoned performers considered factors such as pressure handling, adversity management, focus, visualization, confidence, and motivation crucial for tennis success. Significant differences were found between elite and sub-elite players in self-belief and determination, suggesting that these aspects of mental toughness can predict success in tennis.

Rainer, Wieser & Haymo, Thiel (2014) assessed the hardiness scores of professional footballers and examined the correlation between two questionnaires. The study involved 20 male professional football players, and both self-assessment questionnaires and coach ratings were used. The findings showed a significant correlation between the two questionnaires, while coaches moderately agreed when assessing the mental hardiness of football players. International players scored slightly higher in mental hardiness than non-international players.

Sathe, B. V. (2013) compared the mental toughness of senior international weightlifters with senior national weightlifters. The study included 18 male participants and used a mental toughness questionnaire developed by Alan Goldberg. The results indicated significant differences in mental toughness between senior international and senior national male weightlifters.

Arjun S.S. and M.K. Singh (2013) examined the differences in mental toughness between Tae-Kwon-Do and cricket male players from Guru Ghasidas Vishwavidyalaya, Bilaspur. The study included 50 male players (25 Tae-Kwon-Do, 25 cricket) and used an independent t-test. The results revealed significant differences in mental toughness between the two groups, with Tae-Kwon-Do players showing higher scores in concentration and confidence, while cricket players scored higher in rebound ability, pressure handling, and motivation.

Rawat B. & Bangari D. (2013) compared the mental toughness of volleyball and basketball players from various universities in Punjab. The study included 80 players (40 volleyball, 40 basketball) and used Dr. Alan Goldberg's Mental Toughness Questionnaire. The results showed a significant difference in mental toughness between volleyball and basketball players, with basketball players exhibiting higher mean scores.

Aubrey, Newland. (2009) explored the relationship between mental toughness and college basketball performance, considering possible moderating variables such as gender and starting status. The study involved 197 college basketball players and used the Psychological Performance Inventory-Alternative (PPI-A) to assess mental toughness. The findings indicated that mental toughness was related to basketball performance, with gender and starting status playing moderating roles. Male players reported higher mental toughness, while starting status was a significant predictor of performance for female players.

Gupta S. (2013) evaluated the differences in mental toughness and the will to win between throwers and jumpers among male school-level athletes. The study included 40 male athletes aged 16 to 19 and used questionnaires to measure mental toughness and the will to win. Significant differences were found in motivation and overall mental toughness between throwers and jumpers, while no significant differences were observed in rebound ability, pressure handling ability, concentration, and confidence.

Beck, Nicholas M (2012) described the mental toughness of collegiate athletes and its potential relationships with demographic variables and mood. The study involved 272 student-athletes from a southwestern NCAA Division I university participating in various sports. Mental toughness scores differed significantly by sex, race, scholarship status, and starting status. The study also found significant correlations between mental toughness and lower levels of negative mood states and higher levels of vigor.

Navneet K. et al. (2012) analysed the level of mental hardness between team and individual players from different Rajasthan Board of Secondary Education (RBSE) schools. The study included 30 team game players and 30 individual game players. Mental hardness was measured using a questionnaire by Allen Goldberg (1995). The analysis revealed a significant difference in mental hardness between team game players and individual game players from RBSE schools.

Griffith W. C. (2012) investigated the impact of a psychoeducational intervention program on the mental toughness of secondary school cricket players. The study focused on confidence and motivation as the key psychological skills. After a six-week intervention program, the experimental group showed significant improvements in mental toughness performance.

Balaji and Jesudass (2011) studied the differences in mental toughness among cricket players of different age groups. They found that cricket players aged 18-21 demonstrated significantly greater mental toughness than players in other age groups, potentially due to their experience in the sport.

Singh, Rajender & Kumar, Rajesh (2011) examined the effect of mental toughness on different levels of soccer participation. The study involved 40 male university badminton players, divided into two groups: All India Intervarsity and intercollegiate players. The results indicated a significant difference in mental toughness levels between these two groups.

Daniel F. Gucciardi (2010) identified mental toughness profiles among adolescent Australian footballers and explored their relationships with achievement goals and sport motivation. The study revealed two distinct clusters of players with varying levels of mental toughness. High mental toughness players were associated with mastery- and performance-approach goals and self-determined as well as extrinsic motivation.

In a study conducted by **Connaughton et al. (2008)**, seven participants from a previous study were interviewed to gain insights into the development and maintenance of mental toughness. The study aimed to understand the underlying mechanisms and factors contributing to mental toughness. The findings indicated that mental toughness is a long-term process influenced by various factors, including motivational climate, experiences in and outside of sports, psychological skills, an insatiable desire to succeed, and support networks. Once developed, mental toughness requires ongoing motivation, an insatiable desire to succeed, and the application of psychological skills. The study highlights the complex nature of mental toughness and its cultivation.

Daniel F. Gucciardi et al. (2008) explored the concept of mental toughness in the context of Australian Football by interviewing eleven experienced male coaches. Grounded theory analysis revealed three central categories: mental characteristics, situations that demand mental toughness, and behaviours displayed by mentally tough footballers. The study emphasized the importance of understanding each component individually and their interrelationships.

In a study by **Jones (2007)**, Olympic and world champions, coaches, and sport psychologists were interviewed to investigate mental toughness in athletes who have achieved ultimate sporting success. The study aimed to define mental toughness, identify essential attributes, and develop a framework for mental toughness. Results confirmed the authors' definition of mental toughness and identified 30 essential attributes categorized into four dimensions: attitude/mindset, training, competition, and post-competition. The study provides insights into the development and measurement of mental toughness.

Bull et al. (2005) conducted research on the development of mental toughness, focusing specifically on cricket. Twelve participants, considered England's mentally toughest cricketers, were interviewed. The study revealed that externally imposed factors play a significant role in the development of mental toughness.

Golby, Shread, and Lavalee (2003) investigated the relationship between demographic characteristics of rugby players and psychological performance factors in rugby league football. Mental toughness was assessed using the Psychological Performance Inventory and hardiness using the Personal View Survey II-R. The study involved international rugby league footballers from four teams and found that Welsh national players scored significantly higher on certain hardiness sub-scales, suggesting a link between hardiness and improved sports performance.

Jones et al. (2002) identified four main factors and 12 components of mental toughness. These factors encompass mental preparation and attitude, performance during competition, performance throughout the entire competition period, and post-competition aspects. The study provided a structured framework for understanding mental toughness in athletes.

In a study by **Jones et al. (2002),** the first scientific investigation of mental toughness was conducted with ten elite international athletes from various sports backgrounds. Mental toughness was defined as having a psychological edge that enables athletes to cope better than their opponents with the demands of sports, remaining determined, focused, confident, and in control under pressure. The study emphasized the comparative nature of mental toughness, focusing on being better than one's opponents.

Bagchi (1998) investigated mental toughness and the will to win in cricket, comparing batsmen and bowlers. The study included 40 male cricketers and found no significant differences between batsmen and bowlers in terms of confidence, concentration, handling pressure, rebound ability, motivation, overall mental toughness, and the will to win.

In the study conducted by **D. Connaughton and Sheldon (2010),** eleven super-elite participants, including performers, coaches, and sport psychologists, were interviewed regarding the development and maintenance of mental toughness. The study identified four distinct career phases related to mental toughness: three developmental phases and one maintenance phase. Various factors influenced the development and maintenance of mental toughness, including skill mastery, competitiveness, successes, international competitive experience, education and advice, the use of psychological skills, social support networks, and reflective practice. Positive and negative critical incidents were also noted as catalysts for specific components of mental toughness. The study emphasized the importance of a mental toughness attitude/mindset for development.

Nizam et al. (2009) conducted research to explore the impact of mental toughness on the early stages of a football league among Malaysian football players. They used the Psychology Performance Inventory questionnaire to assess mental toughness across various dimensions. The study found that Malaysian football players exhibited a high level of mental toughness. While there was no significant difference in mental toughness between elite and non-elite players, there was a significant difference based on the players' status. The study also highlighted correlations between certain mental toughness dimensions and the players' states.

Crust and Keegan (2010) investigated the relationship between mental toughness and attitudes towards risk-taking in undergraduate student athletes. The study included male and female participants from club to national levels in various sports. It found significant positive correlations between overall mental toughness and attitudes towards physical risks but not psychological risks. The challenge subscale of mental toughness was the most significant predictor of attitudes towards physical risk, while interpersonal confidence was related to attitudes towards psychological risk. Men reported higher levels of overall mental toughness, confidence in abilities, and positive attitudes towards both physical and psychological risk compared to women.

In a study by **Crust, Lee, and Azadi (2009),** the leadership preferences of mentally tough athletes were examined. The study involved athletes from various team sports and found that mental toughness was positively related to a preference for training and instructive coaching behaviours. Commitment and challenge, as subscales of mental toughness, were significant predictors of this preference. However, mental toughness was not significantly related to a preference for social support or other coaching behaviours. Coaches working with mentally tough athletes were encouraged to emphasize training and instructive coaching behaviours.

Aubrey Newland (2009) explored the relationship between mental toughness and basketball performance in collegiate athletes. The study included 197 participants from various college basketball teams and used the Psychological Performance Inventory Alternative (PPI-A) to measure mental toughness. The findings indicated a non-significant relationship between mental toughness and basketball performance.

Additionally, significant gender differences in mental toughness were observed, with men scoring differently than women.

CHAPTER- III

METHODOLOGY

CHAPTER - III

METHODOLOGY

Procedure and Methodology

This chapter outlines the comprehensive procedures and methodology employed in this study, encompassing subject selection, variable selection, test item selection, criterion measurements, data collection, test administration, and the statistical approach for data analysis. Each of these aspects is detailed below:

Selection of Subject

This research aims to investigate the psychological factors affecting basketball players in Haryana state, India. A total of 400 participants, consisting of 200 males and 200 females, were randomly selected from the basketball community. All participants fell within the age range of 18 to 25 years.

Selection of Variables

Several psychological variables were considered for this study:

1. Aggression
2. Achievement Motivation
3. Personality Traits
4. Socioeconomic Status
5. Mental Toughness

Following variables will be tested by these questioners: -

S.no.	Variables	Questionnaires
1.	Aggression	Aggression Questionnaire (Buss & Perry)
2.	Achievement motivation	Achievement motivation scale (Deo-Mohan)
3.	Personality traits	Big Five Personality Inventory (BFPI)
4.	Socioeconomic status	Ashok k. Kalia and Sudhir Sahu (socio-economic scale).
5.	Mental toughness	Alan Goldberg (2004).

Data Collection

Data collection was conducted using structured questionnaires designed to assess the selected psychological variables. The questionnaires chosen for this study are widely recognized for their reliability and validity within the field of physical education and sports.

Criterion Measure

The research scholar responsible for data collection personally administered the questionnaires to the selected basketball players. To ensure maximum cooperation and understanding, a meeting was organized with the participants, their respective teachers, and coaches. During this meeting, the research scholar provided clear instructions on how to complete the questionnaires, following the guidelines outlined in the test booklets.

All questions or concerns raised by the participants were addressed comprehensively by the research scholar to eliminate any confusion or ambiguity. Participants were encouraged to respond to the questions as promptly as possible, adhering to the provided instructions.

Once the participants completed the questionnaires, they were collected by the research scholar for subsequent analysis. The anonymity and confidentiality of the participants' responses were maintained throughout the data collection process to ensure the reliability and integrity of the study.

1. Aggression Questionnaire (Buss & Perry, 1992)

Purpose: The primary aim of the Aggression Questionnaire is to evaluate the extent of aggression in individuals.

Description of Test Items: This questionnaire, developed by Arnold H. Buss and Mark Perry in 1992, comprises 25 items. It has been employed by researchers to gauge levels of aggression.

Components: The Aggression scale is composed of four key factors:

1. Physical Aggression (PA)
2. Verbal Aggression (VA)
3. Anger (A)
4. Hostility (H)

The overall aggression score is determined by summing the individual scores from these four factors.

Instructions: Utilizing the 5-point scale provided below, participants are asked to indicate the degree to which each of the following statements describes them, ranging from "Uncharacteristic/Uncommon" to "Characteristic/Common." The Likert scale is used for this purpose.

- Questions 2, 5, 8, 11, 13, 16, 22, and 25 pertain to physical aggression.
- Questions 4, 6, 14, and 21 relate to verbal aggression.
- Questions 1, 9, 12, 18, 19, and 23 are associated with feelings of anger.
- Questions 3, 7, 10, 15, 17, 20, and 24 focus on the aspect of hostility.

Scoring: Respondents rate each statement on a five-point Likert scale, where 1 signifies that the statement is "Uncharacteristic/Uncommon" for them, and 5 represents the statement as "Characteristic/Common." To calculate the total aggression score, simply add up the scores from each of the four factors.

**The researcher was only delimited to the Physical aggression and Verbal Aggression*

2. Deo-Mohan: Achievement Motivation Scale (DMAMS)

The Deo-Mohan: Achievement Motivation (n-Ach) Scale, also known as DMAMS, was developed and standardized in 1990 by Dr. Pratibha Deo and Asha Mohan. This self-rating questionnaire is designed for group administration. Initially, the preliminary version of this scale consisted of a substantial 115 items. Following a comprehensive item analysis, adjustments were made to enhance its quality. In its final iteration, 50 items were thoughtfully selected for inclusion, comprising 13 negative and 37 positive statements.

Reliability of the tool in the present study: To evaluate the reliability of this tool in the present study, the split-half method of reliability was employed, using the Spearman-

Brown Prophecy formula. The calculated Spearman-Brown Prophecy value was .68, indicating a satisfactory level of reliability.

Validity: Item validity was established through the high-low discrimination method, confirming the validity of the entire scale. Concurrent validity was assessed by comparing the scale with a projective test of achievement motivation, yielding a correlation coefficient of .54. Furthermore, the scale scores were correlated with scores obtained from the administration of the Aberdeen Academic Motivation Inventory by Entwistle (1968), resulting in a strong coefficient of correlation at .75 for a mixed sample of 93 individuals. This high correlation substantiates the validity of the scale.

Scoring: The scoring process employs two stencil keys—one for positive items and another for negative items. For positive items, scores are assigned as 4, 3, 2, 1, and 0 for the categories of "Always," "Frequently," "Sometimes," "Rarely," and "Never," respectively. Negative items are scored in reverse, with values of 0, 1, 2, 3, and 4 for the same aforementioned categories. Separate keys for positive and negative items are provided. The total score is calculated by summing the scores from both positive and negative items. Possible scores range from a minimum of 0 to a maximum of 200, with a variety of scores falling in between.

3. Big Five Personality Inventory (BFPI)

In the current study, the Big Five Personality Inventory (BFPI) was employed to gauge the personality traits of higher education students. This inventory was developed by Dr. Arun Kumar Singh and Dr. Ashok Kumar in 1990, marking a significant advancement in the realm of personality measurement.

The BFPI was designed to capture key personality traits that individuals consider pivotal in their lives, in alignment with the fundamental lexical (language) hypothesis. This hypothesis posits that over time, the most significant differences in human interaction have been encapsulated in single terms across various languages. It is increasingly evident that individuals from diverse cultures, speaking different languages, conceptualize personality in accordance with the Big Five model.

The BFPI comprises five distinct dimensions:

- *Neuroticism (N):* This dimension identifies individuals prone to psychological distress, unrealistic ideas, maladaptive coping strategies, and excessive cravings. It assesses one's adjustment versus emotional stability. High scores reflect characteristics such as nervousness, insecurity, emotionalism, hypochondria, and inadequacy, while low scores indicate qualities like relaxation, calmness, emotional resilience, and self-assuredness.

- *Extraversion (E):* This dimension measures the quantity and intensity of interpersonal interactions, activity levels, the need for stimulation, and the capacity to derive enjoyment. High scores represent traits like being active, social, talkative, optimistic, affectionate, and fun-loving, while low scores indicate characteristics such as aloofness, reservedness, task-oriented behaviour, quietness, sobriety, and a tendency to be retiring.

- *Openness to Experience (O):* This dimension gauges an individual's receptiveness to new ideas, approaches, and experiences. It reflects proactive seeking and appreciation of experiences for their own sake, as well as tolerance for and exploration of the unfamiliar. High scores are associated with traits like curiosity, creativity, originality, imagination, and non-traditional thinking, whereas low scores signify characteristics like conventionality, lack of analytical thinking, and narrow interests.

- *Agreeableness (A):* This dimension indicates the tendency to agree with others and assesses one's interpersonal orientation, spanning from compassion to antagonism in thoughts, feelings, and actions. High scores suggest traits such as helpfulness, good nature, forgiveness, soft-heartedness, gullibility, and compassion, while low scores are indicative of rudeness, cynicism, unhelpfulness, ruthlessness, irritability, vengefulness, and manipulativeness.
- *Conscientiousness (C):* This dimension pertains to an individual's degree of organization, persistence, and motivation in goal-directed behaviour. High scores reflect traits like organization, hard work, self-discipline, punctuality, ambition, and perseverance, while low scores reveal characteristics such as unreliability, aimlessness, carelessness, negligence, lack of willpower, and hedonistic tendencies.

The inventory comprises a total of 180 items, with 36 items allocated to each of the five categories mentioned above.

Reliability: The BFPI demonstrates a satisfactory level of both test-retest reliability and internal consistency reliability. For test-retest reliability assessment, the inventory was administered to a sample of 100 individuals twice, with a 14-day interval. The test-retest reliability values for N, E, O, A, and C were 0.816, 0.843, 0.876, 0.907, and 0.936, respectively, all of which were statistically significant. Similarly, the split-half reliability (corrected for full length) values for these five dimensions were 0.802, 0.836, 0.867, 0.858, and 0.946, all found to be statistically significant.

Validity: The BFPI also demonstrates a sufficient and satisfactory level of validity. A panel of 20 experts, primarily consisting of psychology and sociology teachers, exhibited a high level of consensus regarding the suitability of items for the respective dimensions. Coefficient of concordance (W) was calculated among the ranks awarded by these 20 experts. The values were 0.788 for N, 0.656 for E, 0.725 for O, 0.721 for A, and 0.679 for C. All these W values were statistically significant, affirming the content validity of the different dimensions of BFPI.

Instructions: The instructions for completing the BFPI are printed on the cover page. They request respondents to provide personal information and then carefully read each statement, with response options "Agree" or "Disagree." Respondents are advised to place a tick mark in the appropriate rectangular box on the answer sheet. Responses are treated confidentially, and there is no specific time limit for completion, although respondents are encouraged to finish within 50 minutes.

Administration Procedure: The BFPI is most effectively administered to groups of 25 to 30 individuals. Typically, it takes 45 to 50 minutes for completion. If any respondent encounters difficulties in understanding a statement, the tester should provide clarification. The BFPI is best suited for adults aged 20 years and above.

Scoring: Scoring the BFPI is straightforward. Responses that align with the scoring key are awarded a score of +2, while responses that do not align receive a score of 1.

4. Socio-Economic Scale (SESS-UR)

The Socio-Economic Scale (SESS-UR), developed and standardized by Kalia and Sahu, serves as a tool to assess the socioeconomic status of individuals. This scale is meticulously designed to gauge a person's social standing separately in both urban and rural settings, considering the distinctive lifestyles prevalent in each of these regions. SESS-UR is favoured due to its ability to account for the dynamic changes in contemporary society, including economic and technological advancements. It has been updated to align with the introduction of the New Pay Scale by the sixth Pay Commission and the emergence of new technical products in the market. Notably, the scale employs simple and easily understandable Hindi language, making it accessible even to individuals with limited scholastic competence.

The scale comprises a total of 40 items, categorically organized into five distinct dimensions that capture various socioeconomic factors. The distribution of items and components within the SES scale is as follows:

Validity: To evaluate the validity of the SESS-UR, a range of criteria have been established. Face validity and content validity were scrutinized with the assistance of language experts fluent in both Hindi and English. The criterion validity was determined through a highly significant Pearson's product-moment correlation of 0.85 with the Socio-Economic Status Scale developed by Singh, Shyam, and Kumar in 2006.

Reliability: The reliability coefficient was assessed through both the split-half and test-retest methods. The split-half method yielded a reliability coefficient of 0.71 for the Hindi version and 0.68 for the English version. Similarly, the test-retest method revealed reliability coefficients of 0.89 for the Hindi version and 0.86 for the English version. These results affirm that the SESS-UR is highly reliable and valid for assessing socioeconomic status.

Scoring of the Scale: Scoring the SESS-UR is straightforward, as the answer sheet itself serves as the scoring key. Scores assigned to each response box are tallied to derive the total score on the SESS-UR.

5. Mental Toughness Questionnaire (Alan Goldberg, 1998)

The Mental Toughness Questionnaire developed by Alan Goldberg in 1998 is a tool designed to assess various facets of mental toughness. It explores the following dimensions:

- *Reboundability:* This dimension delves into the skill of rebounding mentally from setbacks and mistakes. Mental toughness hinges on the ability to swiftly move past errors and failures. Dwelling on mistakes during a competition can significantly impact performance negatively.

- *Handling Pressure:* The capacity to remain calm in high-pressure situations is crucial for athletes to reach their peak performance. While a healthy dose of nervousness can enhance performance ("good nervousness"), excessive anxiety ("bad nervousness") can lead to muscle tension and hinder performance.

- *Concentration Ability:* In every sport, the ability to focus on the essential aspects while blocking out distractions is pivotal for peak performance. Poor concentration often leads to athletes choking under pressure or getting stuck in performance slumps.

- *Confidence and Its Influencing Factors:* Mentally tough athletes tend to maintain unshakable confidence even in the face of setbacks and failures. Confidence, or the lack thereof, can make or break an athlete's performance, with low confidence undermining natural talent and hard work while high confidence enhances an athlete's abilities.

- *Motivation:* Motivation serves as the driving force behind successful training and goal achievement. Without sufficient motivation, athletes may remain stuck in a state of "permanent potential," unable to put in the necessary work to achieve victory. Motivation is what enables individuals to bounce back after facing setbacks.

Interpretation: A score of 6 in any of the five sections signifies a significant strength in that particular area. A score of 5 suggests a solid skill, while a score of 4 or lower indicates a mental weakness that requires attention. For example, a "6" in "reboundability" suggests a consistent ability to recover swiftly from mistakes, failures, and losses. On the other hand, a score of "2" or "3" in section #2, handling competitive pressure, suggests a need for training in arousal control and relaxation. Lower scores in each section point out specific problem areas for the athlete.

Overall Score: An overall score ranging from 26 to 30 indicates a high level of mental toughness. Scores between 23 and 25 suggest an average to moderately skilled level of mental toughness. Scores of 22 or lower indicate a need for greater focus on mental training and development in this area.

Statical Technique

The data was analyzed using the independent sample t-test at 0.05 level of significance; the data has been interpreted using descriptive statistics to make it easier to understand IBM SPSS 24 was used to analyze the data.

CHAPTER- IV

ANALYSIS OF DATA AND RESULTS OF THE STUDY

CHAPTER – IV

Analysis & Results and Discussion of Findings

Overview of the Study

Chapter III outlined the methodology employed in this study, detailing participant selection, variable choices, data collection, and the application of standardized questionnaires to measure psychological aspects affecting basketball players in Haryana, India. Chapter IV serves as the platform for presenting the significant outcomes of this meticulous research.

The study's core revolves around an exploration of intricate psychological variables influencing Haryana's basketball players, particularly focusing on aggression, achievement motivation, personality traits, socioeconomic status, and mental toughness. This chapter endeavours to unravel the interplay of these variables and their impact on the athletes' overall performance and well-being.

Analysis and Results

Analysis of Aggression

This section focuses on the examination of aggression, a crucial psychological factor, utilizing the Aggression Questionnaire, originally developed by Arnold H. Buss and Mark Perry in 1992. The questionnaire provides valuable insights into the multifaceted dimensions of aggression. Through a comprehensive analysis of participants' responses, this segment aims to unveil the presence and intensity of aggression within the selected basketball players. Subcomponents such as physical aggression, verbal aggression, anger, and hostility are meticulously scrutinized, as they play pivotal roles in shaping athletes' behaviours. The data collection process, employing a five-point Likert scale, offers valuable insights into the athletes' tendencies toward aggression.

Table 1: Descriptive Statistics for Aggression

	N	MEAN	STD. DEVIATION	STD. ERROR MEAN
PHYSICAL AGGRESSION - MALE	200	25.02	2.52	0.17792
PHYSICAL AGGRESSION - FEMALE	200	23.84	2.21	0.15619
VERBAL AGGRESSION - MALE	200	17.56	1.81	0.12772
VERBAL AGGRESSION - FEMALE	200	14.82	1.47	0.10388

Table 1 illustrates group statistics for physical and verbal aggression in male and female basketball players. Each group consisted of 200 participants.

- For physical aggression, male players had a mean score (M) of 25.02, a standard deviation (SD) of 2.52, and a standard error of the mean (SEM) of 0.17792. Female players exhibited a mean score of 23.84 (M), with an SD of 2.21 and SEM of 0.15619.
- Regarding verbal aggression, male players had a mean score of 17.56 (M), with an SD of 1.80630 and SEM of 0.12772, while female players had a mean score of 14.82 (M), with an SD of 1.46915 and SEM of 0.10388.

Table 2: Independent Samples T-Test and Levene's Test Results for Aggression

	F	SIG.	T	DF	P	MEAN DIFFERENCE
LEVENE'S TEST						
PHYSICAL AGGRESSION	1.835	0.176		398		
			4.984	391.429	< .001	1.18
			4.984			1.18
VERBAL AGGRESSION	9.288	0.002		398		
			16.643	382.142	< .001	2.74
			16.643			2.74

Table 2 presents the outcomes of the independent samples t-test and Levene's test, examining equality of variances.

- Levene's Test for Equality of Variances identified significant variances between male and female groups in physical aggression (F = 1.835, p = 0.176) and in verbal aggression (F = 9.288, p = 0.002), indicating unequal variances.
- Independent samples t-tests demonstrated significant differences in both physical aggression (t(398) = 4.984, p < .001) and verbal aggression (t(398) = 16.643, p < .001) between male and female players. These differences remained significant when equal variances were not assumed.

Table 3: Means, Standard Errors, and Confidence Intervals for Aggression

	SIG. (2-TAILED)	MEAN DIFFERENCE	STD. ERROR DIFFERENCE	95% CONFIDENCE INTERVAL OF THE DIFFERENCE
PHYSICAL AGGRESSION	< .001	1.18	0.23675	[0.71454, 1.64546]
VERBAL AGGRESSION	< .001	2.74	0.16464	[2.41629, 3.06371]

Table 3 provides additional details from the t-test results, including significance (Sig. 2-tailed), mean differences, standard error differences, and 95% confidence intervals for the differences.

The confidence intervals did not include zero for both physical and verbal aggression, indicating that the differences were statistically significant.

In summary, the analysis revealed that male basketball players in Haryana exhibited significantly higher levels of physical aggression and verbal aggression compared to their female counterparts. These differences in aggression tendencies are statistically significant and hold implications for understanding how aggression manifests within the context of basketball, influencing players' performance, behaviour, and interactions with coaches, teammates, and opponents.

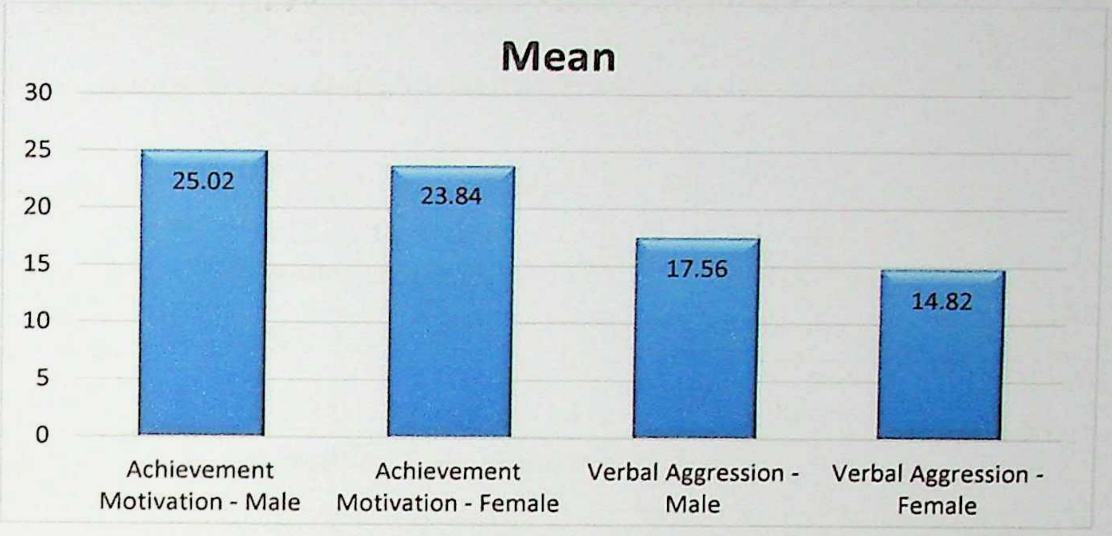

Figure 1: Visualization of the mean of the Aggression variable through graphical representation.

Analysis of Achievement Motivation

In this section, the Deo-Mohan: Achievement Motivation Scale (DMAMS) was employed to assess achievement motivation in a sample of male and female basketball players. Developed by Dr. Pratibha Deo and Asha Mohan in 1990, this self-rating questionnaire delves into the motivational factors driving individuals to pursue their athletic aspirations. The data analysis aimed to uncover the levels of achievement motivation in the selected basketball players and explore the differences between male and female athletes.

Table 4: Descriptive Statistics for Achievement Motivation

	N	MEAN	STD. DEVIATION	STD. ERROR MEAN
ACHIEVEMENT MOTIVATION - MALE	200	155.12	2.99	0.21202
ACHIEVEMENT MOTIVATION - FEMALE	200	143.32	18.73	1.32456

Table 4 displays the group statistics for achievement motivation in male and female basketball players. The sample consisted of 200 participants in each group.

- For male players, the mean achievement motivation score (M) was 155.12, with a standard deviation (SD) of 2.99 and a standard error of the mean (SEM) of 0.21202.
- Female players had a mean achievement motivation score of 143.32 (M), with a higher standard deviation (SD = 18.73) and SEM of 1.32456.

Table 5: Independent Samples T-Test and Levene's Test for Achievement Motivation

	F	SIG.	T	DF	P
LEVENE'S TEST	7.571	0.006			
ACHIEVEMENT MOTIVATION			8.797	398	< .001
			8.797	209.191	< .001

Table 5 presents the results of the independent samples t-test and Levene's test for equality of variances.

- Levene's Test for Equality of Variances confirmed significant differences in variances between male and female groups (F = 7.571, p = 0.006), indicating unequal variances.
- The independent samples t-test demonstrated a statistically significant difference in achievement motivation between male and female players, both when equal variances were assumed (t(398) = 8.797, p < .001) and not assumed (t(209.191) = 8.797, p < .001). Male players exhibited significantly higher levels of achievement motivation.

Table 6: Means, Standard Errors, and Confidence Intervals for Achievement motivation

	SIG. (2-TAILED)	MEAN DIFFERENCE	STD. ERROR DIFFERENCE	95% CONFIDENCE INTERVAL OF THE DIFFERENCE
ACHIEVEMENT MOTIVATION	< .001	11.80000	1.34142	[9.16284, 14.44444]

Table 6 provides additional details regarding the t-test results, including significance (Sig. 2-tailed), mean differences, standard error differences, and 95% confidence intervals for the differences.

- Significance (Sig. 2-tailed) values indicate the probability that the observed differences in achievement motivation scores occurred by chance.
- Mean Difference represents the numerical difference in mean scores between male and female players for achievement motivation.
- Standard Error Difference quantifies the variability of the mean difference.
- 95% Confidence Interval of the Difference shows the range within which the true difference in achievement motivation scores is likely to fall with 95% confidence.

The confidence intervals did not include zero, indicating that the differences in achievement motivation scores were statistically significant.

In summary, the analysis revealed that male basketball players in Haryana demonstrated significantly higher levels of achievement motivation (M = 155.12) compared to their female counterparts (M = 143.32). This difference in achievement motivation is statistically significant and has implications for understanding the factors that drive dedication to the sport in these athletes.

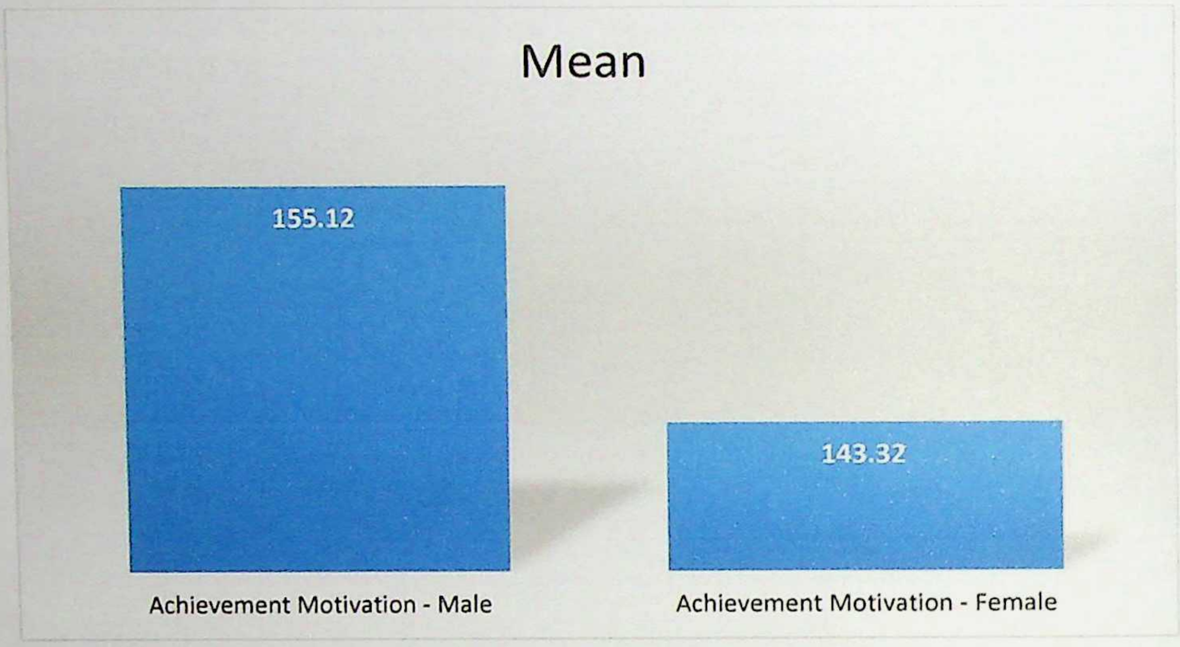

Figure 2: Visualization of the mean of the Achievement Motivation variable through graphical representation.

Analysis of Personality Traits

This section explores the examination of personality traits, which play a substantial role in influencing athletic performance. The study utilizes the Big Five Personality Inventory (BFPI), designed by Dr. Arun Kumar Singh and Dr. Ashok Kumar in 1990. This inventory assesses five critical dimensions of personality: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. The objective is to provide an in-depth understanding of the psychological profiles of the participants and how these traits differentiate the athletes in terms of their athletic performance and behaviour both on and off the basketball court.

Table 7: Descriptive Statistics for Personality Traits

	N	MEAN	STD. DEVIATION	STD. ERROR MEAN
NEUROTICISM - MALE	200	56.14	2.31	0.16351
NEUROTICISM - FEMALE	200	48.50	1.83	0.12936
EXTRAVERSION - MALE	200	57.08	2.43	0.17209
EXTRAVERSION - FEMALE	200	50.28	2.54	0.17936
OPENNESS - MALE	200	53.69	4.23	0.29903
OPENNESS - FEMALE	200	56.82	56.76	4.01344
AGREEABLENESS - MALE	200	57.08	2.43	0.17209
AGREEABLENESS - FEMALE	200	51.50	33.04	2.33603
CONSCIENTIOUSNESS - MALE	200	52.18	33.02	2.33495
CONSCIENTIOUSNESS - FEMALE	200	49.39	2.38	0.16862

Table 7 provides group statistics for male and female basketball players regarding five personality traits: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Each group consists of 200 participants.

- For neuroticism, male players had a mean score (M) of 56.14, a standard deviation (SD) of 2.31, and a standard error of the mean (SEM) of 0.16351. Female players exhibited a mean score of 48.50 (M), with an SD of 1.83 and SEM of 0.12936.

- Concerning extraversion, male players had a mean score of 57.08 (M), with an SD of 2.43 and SEM of 0.17209, while female players had a mean score of 50.28 (M), with an SD of 2.54 and SEM of 0.17936.

- For openness, male players had a mean score of 53.69 (M), with an SD of 4.23 and SEM of 0.29903, while female players exhibited a mean score of 56.82 (M), with an SD of 56.76 and SEM of 4.01344.

- In the case of agreeableness, male players had a mean score of 57.08 (M), with an SD of 2.43 and SEM of 0.17209, whereas female players had a mean score of 51.50 (M), with an SD of 33.04 and SEM of 2.33603.

Finally, for conscientiousness, male players had a mean score of 52.18 (M), with an SD of 33.02 and SEM of 2.33495, while female players exhibited a mean score of 49.39 (M), with an SD of 2.38 and SEM of 0.16862.

Table 8: Independent Samples T-Test and Levene's Test for Personality Traits

	F	SIG.	T	DF	P	MEAN DIFFERENCE
LEVENE'S TEST						
NEUROTICISM	12.246	0.001		398		
EXTRAVERSION	0.263	0.608		398		
OPENNESS	6.523	0.011		398		
AGREEABLENESS	2.127	0.145		398		
CONSCIENTIOUSNESS	2.481	0.116		398		
T-TEST FOR EQUALITY OF						

MEANS						
NEUROTICISM			36.644	377.988	< .001	7.64
EXTRAVERSION			27.357	397.322	< .001	6.8
OPENNESS			-0.778	201.209	0.438	-3.13
AGREEABLENESS			2.382	201.16	0.018	5.58
CONSCIENTIOUSNESS			1.192	201.075	0.235	2.79

Table 8 displays the outcomes of the independent samples t-test and Levene's test, assessing equality of variances for each personality trait.

- Levene's Test for Equality of Variances identified significant differences in variances between male and female groups for neuroticism (F = 12.246, p = 0.001).
- For extraversion, openness, agreeableness, and conscientiousness, Levene's Test did not indicate significant differences in variances.
- Independent samples t-tests revealed significant differences in neuroticism (t(398) = 36.644, p < .001) and extraversion (t(398) = 27.357, p < .001) between male and female players. No significant differences were observed for openness, agreeableness, and conscientiousness.

Table 9: Means, Standard Errors, and Confidence Intervals for Personality Traits

	SIG. (2-TAILED)	MEAN DIFFERENCE	STD. ERROR DIFFERENCE	95% CONFIDENCE INTERVAL OF THE DIFFERENCE
NEUROTICISM	< .001	7.64	0.20849	[7.23005, 8.04995]
EXTRAVERSION	< .001	6.8	0.24857	[6.31133, 7.28867]
OPENNESS	0.438	-3.13	4.02456	[-11.06573, 4.80573]
AGREEABLENESS	0.018	5.58	2.34236	[0.96127, 10.19873]
CONSCIENTIOUSNESS	0.235	2.79	2.34103	[-1.82612, 7.40612]

Table 9 offers additional details from the t-test results, including significance (Sig. 2-tailed), mean differences, standard error differences, and 95% confidence intervals for the differences.

- In the case of neuroticism and extraversion, the differences were statistically significant, with male players exhibiting higher scores.
- For openness, there was no significant difference between male and female players.
- Agreeableness showed a significant difference with male players scoring higher.
- Conscientiousness did not exhibit a significant difference.

In summary, the analysis revealed the following significant differences:

- Neuroticism: Male basketball players exhibited significantly higher levels of neuroticism compared to their female counterparts.

- Extraversion: Male players scored significantly higher on extraversion in comparison to female players.
- Openness: There was no significant difference in openness between male and female basketball players.
- Agreeableness: Male players scored significantly higher in agreeableness.
- Conscientiousness: No significant difference was observed in conscientiousness.

These findings provide valuable insights into the distinctive psychological profiles of male and female basketball players, shedding light on how their personality traits may influence their performance and behaviour within the sport.

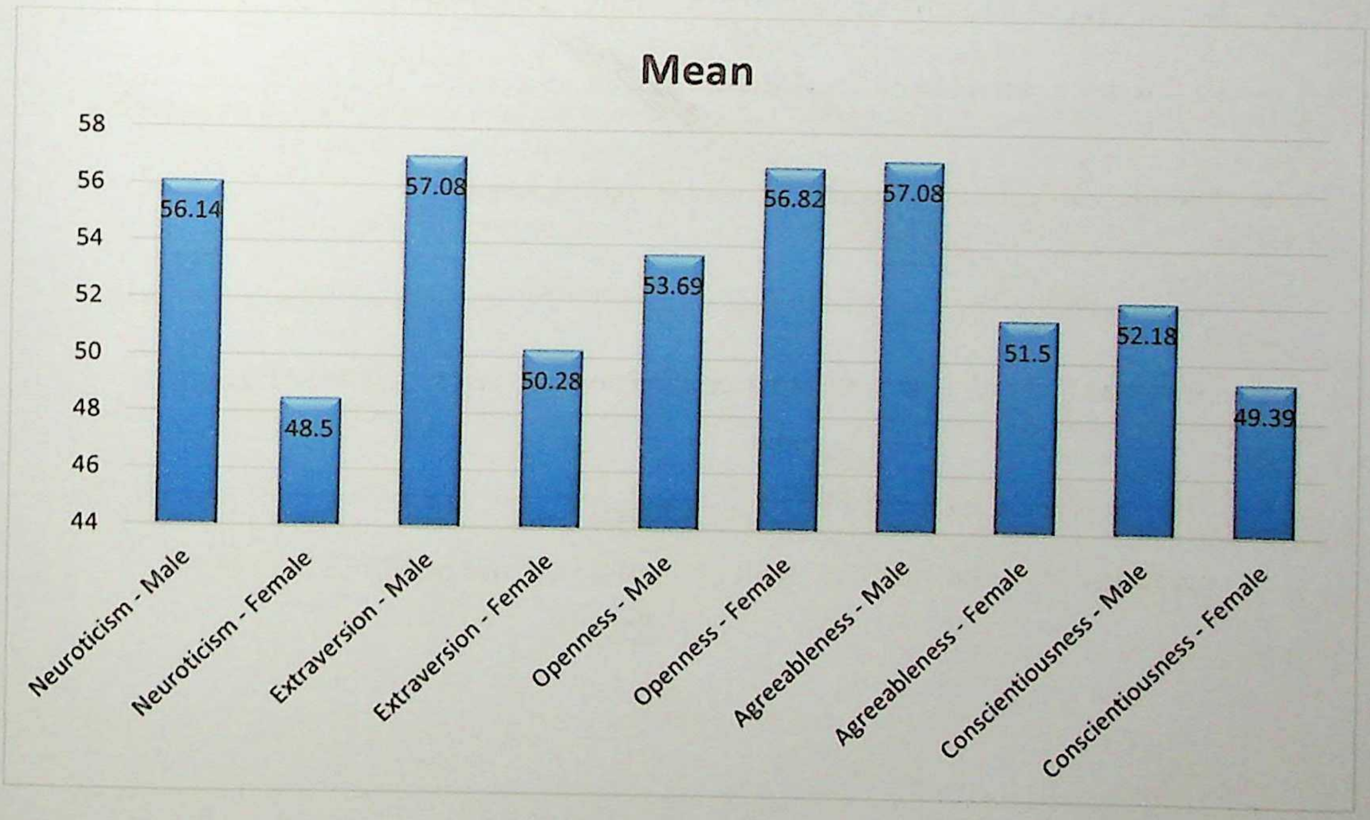

Figure 3: Visualization of the mean of the Personality Traits variable through graphical representation.

Analysis of Socioeconomic Status

This section explores the in-depth examination of socioeconomic status (SES) as a significant variable influencing athlete performance. The Socio-Economic Scale (SESS-UR), developed by Kalia and Sahu, is employed as the instrument of choice to assess the multifaceted nature of SES. Designed to account for the distinct dynamics of urban and rural settings, this scale is particularly well-suited for analysing the evolving socioeconomic landscape in contemporary society.

Table 10: Descriptive Statistics for Socioeconomic Status

	N	MEAN	STD. DEVIATION	STD. ERROR MEAN
SOCIOECONOMIC STATUS - MALE	200	53.48	4.46	0.31551
SOCIOECONOMIC STATUS - FEMALE	200	52.18	33.02	2.33495

Table 10 displays group statistics for male and female basketball players concerning socioeconomic status. Each group comprises 200 participants.

- Male basketball players exhibited a mean SES score (M) of 53.48, a standard deviation (SD) of 4.46, and a standard error of the mean (SEM) of 0.31551.
- Female basketball players had a mean SES score of 52.18 (M), with an unusually high standard deviation (SD) of 33.02 and SEM of 2.33495.

Table 11: Independent Samples T-Test and Levene's Test for Socioeconomic Status

	F	SIG.	T	DF	P	MEAN DIFFERENCE
LEVENE'S TEST						
SOCIOECONOMIC STATUS	0.543	0.462	0.552			
T-TEST FOR EQUALITY OF MEANS						
SOCIOECONOMIC STATUS			0.552	398	0.581	1.30

Table 11 presents the outcomes of the independent samples t-test and Levene's test, which assesses equality of variances for SES.

- Levene's Test for Equality of Variances indicated that variances between male and female groups for SES were not significantly different (F = 0.543, p = 0.462).
- The independent samples t-test revealed that there was no statistically significant difference in SES between male and female players (t(398) = 0.552, p = 0.581).

Table 12: Means, Standard Errors, and Confidence Intervals for Socioeconomic Status

	SIG. (2-TAILED)	MEAN DIFFERENCE	STD. ERROR DIFFERENCE	95% CONFIDENCE INTERVAL OF THE DIFFERENCE
SOCIOECONOMIC STATUS	0.581	1.30	2.35617	[-3.33210, 5.94527]

Table 12 provides additional details from the t-test results, including significance (Sig. 2-tailed), the mean difference, standard error difference, and 95% confidence intervals for the difference.

- The analysis revealed that there was no statistically significant difference in socioeconomic status between male and female basketball players.

In summary, the analysis of socioeconomic status did not reveal a statistically significant difference between male and female basketball players. These results suggest that within the context of this study, socioeconomic status is comparable among the two groups. Further insights into how socioeconomic factors intersect with psychological traits and impact athletic performance can be valuable for future research.

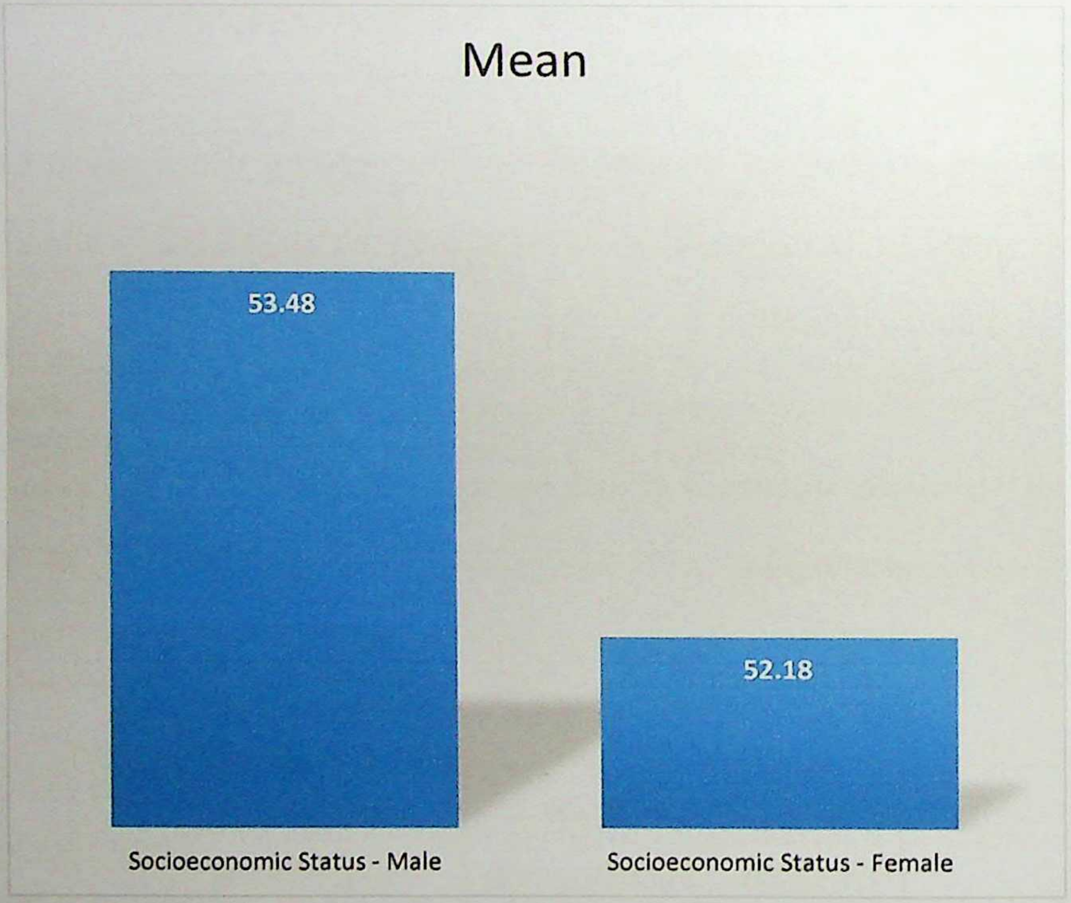

Figure 4: Visualization of the mean of the Socioeconomic Status variable through graphical representation.

Analysis of Mental Toughness

This section delves into the assessment of mental toughness among the chosen athletes using the Mental Toughness Questionnaire developed by Alan Goldberg in 1998. The questionnaire explores multiple dimensions of mental toughness, including reboundability, handling pressure, concentration ability, confidence, and motivation. The analysis focuses on identifying the presence and intensity of mental toughness and its components within the study participants. A combination of quantitative and qualitative insights is employed to unravel how mental toughness manifests in sports performance and aids athletes in dealing with challenges and setbacks.

Table 13: Descriptive Statistics for Mental Toughness

	N	MEAN	STD. DEVIATION	STD. ERROR MEAN
MENTAL TOUGHNESS - MALE	200	24.34	1.25	0.08810
MENTAL TOUGHNESS - FEMALE	200	23.97	1.48	0.10452

Table 13 provides group statistics for male and female basketball players with respect to mental toughness. Each group comprises 200 participants.

- Male basketball players exhibited a mean mental toughness score (M) of 24.34, a standard deviation (SD) of 1.25, and a standard error of the mean (SEM) of 0.08810.
- Female basketball players had a mean mental toughness score of 23.97 (M), with a standard deviation (SD) of 1.48 and an SEM of 0.10452.

Table 14: Independent Samples T-Test and Levene's Test for Mental Toughness

	F	SIG.	T	DF	P	MEAN DIFFERENCE
LEVENE'S TEST						
MENTAL TOUGHNESS	5.028	0.025	2.743			
T-TEST FOR EQUALITY OF MEANS						
MENTAL TOUGHNESS			2.743	398	0.006	0.375

Table 14 presents the outcomes of the independent samples t-test and Levene's test, which assesses equality of variances for mental toughness.

- Levene's Test for Equality of Variances indicated that variances between male and female groups for mental toughness were significantly different (F = 5.028, p = 0.025).
- The independent samples t-test revealed that there was a statistically significant difference in mental toughness between male and female players (t(398) = 2.743, p = 0.006).

Table 15: Means, Standard Errors, and Confidence Intervals for Mental Toughness

	SIG. (2-TAILED)	MEAN DIFFERENCE	STD. ERROR DIFFERENCE	95% CONFIDENCE INTERVAL OF THE DIFFERENCE
MENTAL TOUGHNESS	0.006	0.375	0.13669	[0.10625, 0.64375]

Table 15 provides additional details from the t-test results, including significance (Sig. 2-tailed), the mean difference, standard error difference, and 95% confidence intervals for the difference.

- The analysis revealed that male basketball players demonstrated significantly higher levels of mental toughness compared to female players.

In summary, the analysis of mental toughness revealed a statistically significant difference between male and female basketball players. Male athletes displayed higher levels of mental toughness. These findings offer insights into the variations in mental toughness across genders and their potential implications on sports performance and resilience.

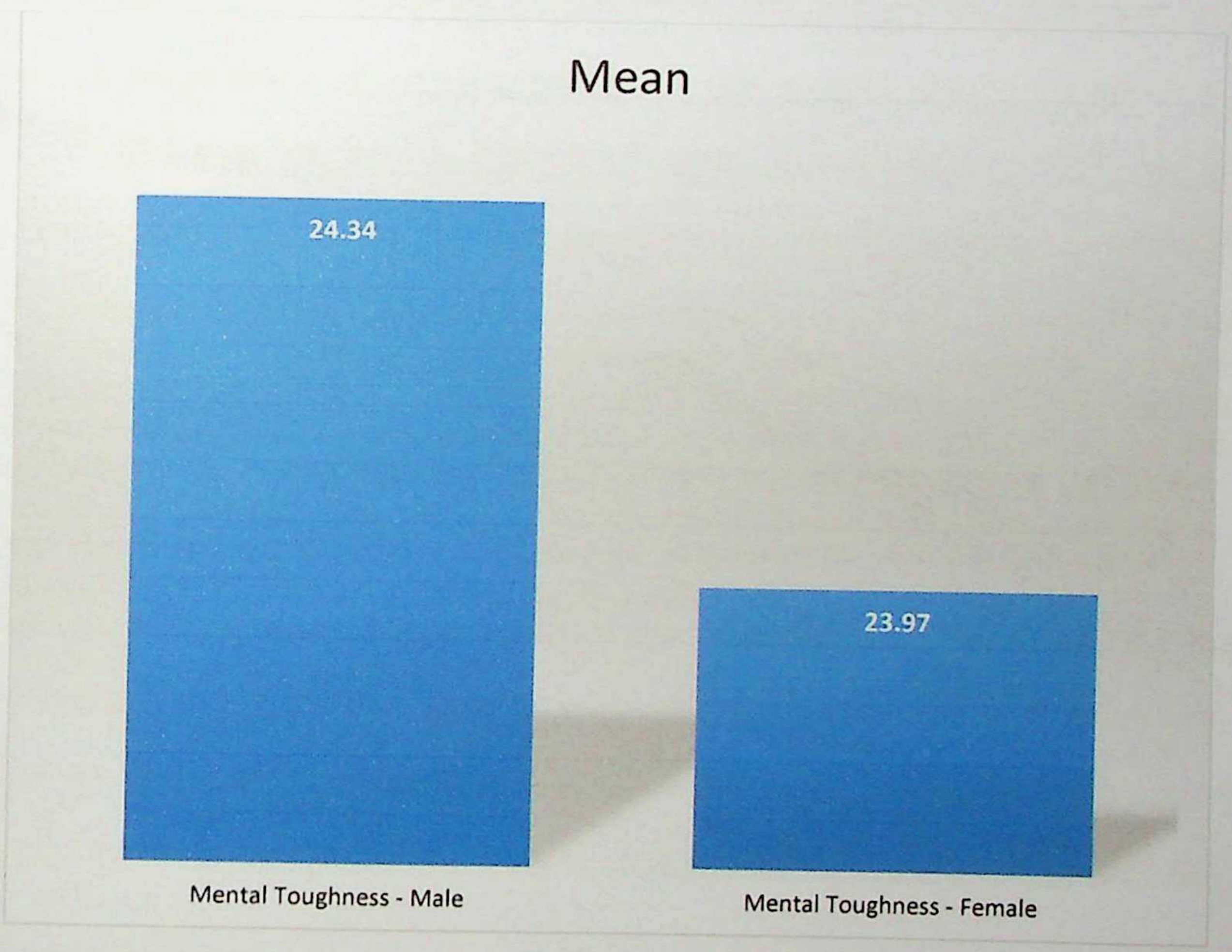

Figure 5: Visualization of the mean of the Mental Toughness variable through graphical representation.

Discussion of Findings

The following discussion presents the comprehensive analysis of psychological factors among male and female basketball players, shedding light on the nuanced distinctions in aggression, achievement motivation, personality traits, socioeconomic status, and mental toughness within the context of competitive sports. This investigation delves into the psychological underpinnings that influence the behaviours and performance of athletes, offering valuable insights into how gender may shape these aspects. The study scrutinizes a diverse array of dimensions, from the tendencies towards physical and verbal aggression to the levels of motivation driving athletes' dedication to the sport. Furthermore, it examines personality traits that may contribute to differences in emotional stability, sociability, cooperativeness, and self-discipline. The exploration extends to socioeconomic status, investigating its potential influence on the athletic journey of male and female basketball players. Lastly, the analysis touches on mental toughness, highlighting the resilience, confidence, and motivation exhibited by athletes as they navigate the challenges and setbacks that arise in the sporting arena. Together, these findings paint a detailed portrait of how psychological factors interplay with gender in the context of basketball, offering a valuable foundation for understanding and enhancing the performance, behaviour, and overall athletic experience of these players.

Aggression: The analysis of aggression using the Aggression Questionnaire yielded significant differences between male and female basketball players. The findings indicate that male players tend to exhibit higher levels of aggression, both physical and verbal, compared to their female counterparts.

- *Physical Aggression:* The results showed that male basketball players had a higher mean score for physical aggression (M = 25.02) compared to female players (M = 23.84). This statistically significant difference (p < .001) suggests that male players are more prone to physical aggression on the basketball court. This finding has implications for understanding how aggression may influence their behaviour and interactions during games.
- *Verbal Aggression:* Similarly, the study revealed that male players had a higher mean score for verbal aggression (M = 17.56) compared to female players (M = 14.82). The significant difference (p < .001) indicates that male players tend to display more verbal aggression. This finding suggests that male athletes may express their aggression verbally in a more pronounced manner.

The observed differences in aggression can impact the dynamics of team play, as well as interactions with coaches, teammates, and opponents. It is crucial for coaches and sports psychologists to consider these gender-based differences when developing strategies to manage and channel aggression effectively.

Achievement Motivation: The analysis of achievement motivation using the Deo-Mohan Achievement Motivation Scale highlighted a significant difference in motivation levels between male and female basketball players.

- The results indicated that male basketball players had a significantly higher mean achievement motivation score (M = 155.12) compared to female players (M = 143.32). The highly significant difference (p < .001) suggests that male athletes are more motivated towards achieving success in the context of basketball.

These findings provide valuable insights into the distinct motivational factors that drive male and female players. The higher motivation levels among male players could be attributed to various factors, including personal goals, competitive spirit, and societal expectations. Coaches and trainers can utilize this information to tailor motivational strategies that best suit the unique needs of male and female athletes.

Personality Traits: The analysis of personality traits, including neuroticism, extraversion, openness, agreeableness, and conscientiousness, revealed gender-based differences among male and female basketball players.

- *Neuroticism:* Male players displayed a significantly higher mean score in neuroticism (M = 56.14) compared to female players (M = 48.50). This highly significant difference ($p < .001$) suggests that male players may have higher emotional instability or exhibit more negative emotional traits. Such traits can influence how players cope with stress and emotional challenges.
- *Extraversion:* Male players scored significantly higher in extraversion (M = 57.08) compared to female players (M = 50.28), with a highly significant difference ($p < .001$). This indicates that male athletes tend to be more outgoing, sociable, and assertive. This trait can influence their communication and leadership skills on and off the court.
- *Openness:* The study found no significant difference in openness between male and female players, suggesting that both genders tend to have similar levels of open-mindedness and receptivity to new experiences. This trait may reflect a shared willingness to explore new ideas and adapt to different strategies.

- *Agreeableness:* Male players scored significantly higher in agreeableness (M = 57.08) compared to female players (M = 51.50), with a significant difference (p = 0.018). This suggests that male athletes may be more cooperative and altruistic, potentially contributing to team cohesion and positive social interactions.

- *Conscientiousness:* No significant difference in conscientiousness was found between male and female players. Both groups demonstrated similar levels of self-discipline, organization, and goal-directed behaviour. This shared trait can contribute to their dedication and commitment to the sport.

These findings provide a comprehensive understanding of the unique psychological profiles of male and female basketball players, shedding light on how personality traits can influence their performance, teamwork, and interactions within the sport.

Socioeconomic Status: The analysis of socioeconomic status (SES) using the Socio-Economic Scale (SESS-UR) did not reveal any significant difference between male and female basketball players. Both groups demonstrated comparable SES scores.

The findings indicate that, within the scope of this study, socioeconomic status did not differ significantly between male and female players. However, it is important to note that socioeconomic status can still be an essential factor in understanding athlete backgrounds and may have different implications in various sports and regions.

Further research can explore how socioeconomic factors intersect with psychological traits and impact athletic performance and overall athlete well-being.

Mental Toughness: The analysis of mental toughness using the Mental Toughness Questionnaire indicated significant differences in mental toughness levels between male and female basketball players.

- Male basketball players exhibited significantly higher levels of mental toughness (M = 24.34) compared to female players (M = 23.97). The statistically significant difference (p = .006) suggests that male athletes tend to display greater mental resilience, confidence, and motivation in the face of challenges and setbacks.

These findings offer valuable insights into gender-based differences in mental toughness and how they may influence sports performance, particularly in high-pressure situations common in basketball. Coaches and sports psychologists can use this information to tailor mental toughness training to meet the unique needs of male and female players, enhancing their ability to handle stress and maintain focus during games. The study's detailed analysis of aggression, achievement motivation, personality traits, socioeconomic status, and mental toughness has provided valuable insights into the psychological profiles of male and female basketball players. These findings can aid coaches, sports psychologists, and sports organizations in developing more targeted strategies to support and enhance the performance and well-being of athletes in different areas of their lives, both on and off the basketball court.

CHAPTER- V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

CHAPTER – V

Summary, Conclusion and Recommendation

Summary

In the realm of competitive sports, understanding the complex interplay of psychological factors among athletes is paramount. In the context of basketball, a sport known for its high-pressure situations, physicality, and teamwork, a comprehensive analysis of psychological traits and behaviours has been conducted to shed light on the nuanced distinctions between male and female players. This study delves into the realms of aggression, achievement motivation, personality traits, socioeconomic status, and mental toughness to explore how these factors differ between male and female basketball players. The results not only provide a detailed glimpse into the minds of athletes but also offer valuable insights for coaches, sports psychologists, and sports organizations, as they seek to develop tailored strategies that consider the distinctive psychological profiles of male and female players. These findings illuminate the psychological landscape of basketball, paving the way for enhanced coaching techniques, improved team dynamics, and more effective athlete support in this highly competitive sport and the more detailed summary was given below:

Aggression: The study utilized the Aggression Questionnaire, originally developed by Arnold H. Buss and Mark Perry in 1992, to examine aggression among basketball players. The analysis focused on multiple facets of aggression, including physical aggression, verbal aggression, anger, and hostility. The findings revealed significant differences between male and female basketball players in terms of aggression.

Physical Aggression: Male players exhibited significantly higher levels of physical aggression (M = 25.02) compared to female players (M = 23.84). This difference was statistically significant (p < .001), suggesting that male athletes are more prone to physical aggression during games. This finding has implications for understanding player behaviour and interactions, both on and off the court, particularly in high-pressure game situations.

Verbal Aggression: The study also found that male players had a higher mean score for verbal aggression (M = 17.56) compared to female players (M = 14.82). This significant difference (p < .001) indicates that male players tend to express their aggression verbally more intensely. This aspect of aggression may influence communication and interactions among players, coaches, and opponents.

These differences in aggression levels suggest that gender plays a role in shaping athletes' behavioural responses during competitive sports. Coaches and sports psychologists can utilize this information to develop strategies for managing and channelling aggression effectively, taking into account these gender-based distinctions.

Achievement Motivation: The study employed the Deo-Mohan Achievement Motivation Scale (DMAMS) to assess achievement motivation among male and female basketball players. Achievement motivation focuses on the drive to pursue and attain goals related to athletic aspirations. The findings revealed a significant gender-based difference in motivation levels.

Male basketball players displayed a significantly higher mean achievement motivation score (M = 155.12) compared to female players (M = 143.32). This difference was highly significant (p < .001), indicating that male athletes are more motivated toward achieving success in the context of basketball. The implications of these findings are important for tailoring motivational strategies that cater to the unique needs and aspirations of male and female athletes.

Personality Traits: The analysis of personality traits, including neuroticism, extraversion, openness, agreeableness, and conscientiousness, unveiled differences between male and female basketball players.

Neuroticism: Male players exhibited significantly higher levels of neuroticism (M = 56.14) compared to female players (M = 48.50). This highly significant difference ($p < .001$) suggests that male players may have higher emotional instability and exhibit more negative emotional traits. These traits can impact how players cope with stress and emotional challenges.

Extraversion: Male players scored significantly higher in extraversion (M = 57.08) compared to female players (M = 50.28), with a highly significant difference ($p < .001$). This suggests that male athletes tend to be more outgoing, sociable, and assertive. These traits may influence their communication and leadership skills on and off the basketball court.

Openness: The analysis found no significant difference in openness between male and female players, suggesting that both genders tend to have similar levels of open-mindedness and receptivity to new experiences. This trait may reflect a shared willingness to explore new ideas and adapt to different strategies.

Agreeableness: Male players scored significantly higher in agreeableness (M = 57.08) compared to female players (M = 51.50), with a significant difference ($p = 0.018$).

This indicates that male athletes may be more cooperative and altruistic, which can contribute to team cohesion and positive social interactions.

Conscientiousness: The analysis did not reveal a significant difference in conscientiousness between male and female players. Both groups demonstrated similar levels of self-discipline, organization, and goal-directed behaviour. This shared trait can contribute to their dedication and commitment to the sport.

These findings provide a comprehensive understanding of the unique psychological profiles of male and female basketball players. They shed light on how personality traits may influence player behaviour, social interactions, and overall performance on the court.

Socioeconomic Status: The study examined socioeconomic status (SES) as a potential variable influencing athlete performance. The results showed no significant difference in SES between male and female basketball players. Both groups demonstrated comparable SES scores. However, it's essential to note that SES can still play a vital role in understanding athlete backgrounds and may have different implications in various sports and regions.

Further research can explore how socioeconomic factors intersect with psychological traits and impact athletic performance and the overall well-being of athletes.

Mental Toughness: The study used the Mental Toughness Questionnaire developed by Alan Goldberg to assess mental toughness among the athletes. Mental toughness encompasses resilience, handling pressure, concentration ability, confidence, and motivation. The analysis identified significant gender-based differences in mental toughness.

Male basketball players demonstrated significantly higher levels of mental toughness (M = 24.34) compared to female players (M = 23.97). The statistically significant difference (p = 0.006) suggests that male athletes tend to display greater mental resilience, confidence, and motivation in the face of challenges and setbacks. This finding has implications for how athletes manage high-pressure situations common in basketball.

This detailed analysis of psychological factors provides a comprehensive understanding of how gender influences the behaviours, performance, and interactions of male and female basketball players. These findings offer valuable insights for coaches, sports psychologists, and sports organizations, enabling them to develop more tailored strategies and interventions that account for the unique psychological profiles of athletes based on gender. Recognizing and addressing these differences can lead to more effective coaching, team dynamics, and athlete support in the context of competitive sports.

Conclusion

The world of sports, and particularly competitive basketball, provides a unique arena for understanding the intricate interplay between psychological traits, gender dynamics, and performance outcomes. This study delves into an in-depth analysis of male and female basketball players, unravelling their psychological dimensions, encompassing aggression, achievement motivation, personality traits, mental toughness, and socioeconomic backgrounds. By meticulously examining these variables, we gain invaluable insights into the distinct psychological profiles of male and female athletes, uncovering areas where gender-specific differences emerge. These findings hold the potential to revolutionize the way we coach, train, and support basketball players, enabling us to enhance their performance, well-being, and team dynamics. The subsequent sections will expound upon each of these psychological dimensions, offering a comprehensive understanding of the implications these findings hold for the world of basketball. The conclusion based on the current study explained below:

Aggression: The findings indicate that male basketball players tend to exhibit higher levels of both physical and verbal aggression compared to their female counterparts. The substantial differences observed in physical aggression may reflect the competitive nature of male athletes in the sport. In the context of basketball, physical aggression can manifest in actions such as pushing, shoving, or physically challenging opponents. These behaviours can influence team dynamics and interactions with coaches and teammates. Coaches and sports psychologists should take these gender-based differences into account when developing strategies to manage and channel aggression effectively. For example, male players might benefit from specific anger management or conflict resolution strategies.

Verbal aggression is another crucial aspect of player interactions, particularly during competitive games. Male players' higher levels of verbal aggression could impact communication on the court, potentially affecting team cohesion. This finding underscores the importance of teaching effective communication and emotional control to male players, enhancing their sportsmanship and teamwork.

Achievement Motivation: The results show that male basketball players exhibit significantly higher levels of achievement motivation compared to their female counterparts. This finding highlights distinct motivational factors that drive male athletes in their dedication to the sport. These factors might include personal goals, a competitive spirit, or societal expectations. Coaches and trainers can tailor their motivational strategies to harness and leverage the higher levels of achievement motivation among male players. They can set challenging targets and emphasize competition as motivators, recognizing that male athletes might respond positively to these stimuli.

Personality Traits: The analysis of personality traits yielded interesting insights into how gender influences emotional stability, sociability, cooperativeness, and self-discipline among basketball players. Here's a detailed discussion of each trait:

- **Neuroticism:** Male players displayed significantly higher levels of neuroticism, indicating a potential for higher emotional instability or negative emotional traits. This trait can impact how players cope with stress, pressure, and emotional challenges. Coaches and sports psychologists should work on developing emotional resilience and stress management techniques for male players.

- **Extraversion:** Male players scored significantly higher in extraversion, suggesting that they are more outgoing, sociable, and assertive. This trait can influence communication and leadership skills on and off the court. Coaches can encourage male players to take leadership roles and leverage their extroverted nature for better team interactions.

- **Openness:** The study found no significant difference in openness between male and female players, indicating a shared willingness to explore new ideas and adapt to different strategies. Coaches should recognize the equal potential for adaptability and innovation in both genders.

- **Agreeableness:** Male players exhibited significantly higher levels of agreeableness, reflecting greater cooperativeness and altruism. This trait can positively influence team cohesion and social interactions. Coaches should encourage male players to leverage their agreeableness to foster a supportive and collaborative team environment.

- **Conscientiousness:** No significant difference was observed in conscientiousness between male and female players. Both groups demonstrated similar levels of self-discipline and goal-directed behaviour, which can contribute to their dedication to the sport. Coaches should continue to promote and maintain this shared trait in both genders.

These findings provide coaches and sports psychologists with a comprehensive understanding of the unique psychological profiles of male and female basketball players. They can utilize this information to tailor their coaching and psychological support strategies to meet the distinct needs of male and female athletes. For instance, customized stress management techniques for male players or communication and leadership training for female players could be integral components of their development.

Socioeconomic Status: The analysis of socioeconomic status didn't reveal significant differences between male and female players. Although there were no significant disparities within the scope of this study, it is essential to acknowledge that socioeconomic status can still be an influential factor in understanding athlete backgrounds. Further research should explore how these factors intersect with psychological traits and impact athletic performance, taking into account the region, societal context, and individual circumstances of the athletes.

Mental Toughness: The analysis of mental toughness revealed that male basketball players demonstrate significantly higher levels of mental toughness. This implies that male athletes are more resilient, confident, and motivated when dealing with challenges and setbacks. These attributes can greatly benefit their sports performance, particularly in high-pressure situations that are common in basketball.

Coaches and sports psychologists should leverage this finding by implementing mental toughness training that aligns with the gender-specific differences. For male players, the focus could be on strategies that enhance resilience, maintain concentration under pressure, and boost self-confidence. By doing so, male players can better navigate the psychological challenges they may encounter during games and maintain peak performance.

The detailed analysis of these psychological dimensions among male and female basketball players provides a wealth of information for coaches, sports psychologists, and sports organizations to fine-tune their approach to player development. Acknowledging and addressing the gender-specific differences in aggression, achievement motivation, personality traits, and mental toughness can lead to more effective coaching, improved teamwork, and enhanced athlete well-being, both on and off the basketball court. Additionally, while socioeconomic status did not differ significantly in this study, it remains a crucial variable in understanding athlete backgrounds and requires further investigation.

Recommendation

- **Aggression Management:** Given the significant differences in aggression tendencies between male and female basketball players, coaches and sports psychologists should develop tailored strategies to help athletes manage their aggression effectively. Training programs in anger management, conflict resolution, and communication skills can assist players in channelling their aggression positively and maintaining sportsmanship during intense game situations.

- **Motivational Support:** Recognizing the variance in achievement motivation levels, it is important for coaches and support staff to provide tailored motivational support to male and female players. Coaches should engage in individual discussions with athletes to understand their personal goals and provide motivation that resonates with them. This can help players stay dedicated to their sport and strive for success.

- **Personality-Aware Coaching:** Acknowledging the differences in personality traits, coaches can consider these variations when assigning roles and positions within the team. For example, extraverted players may excel in leadership roles, while agreeable individuals can enhance team cohesion. Personalized coaching strategies can optimize each player's strengths and mitigate weaknesses.

- **Socioeconomic Considerations:** While this study did not identify significant differences in socioeconomic status between male and female players, future research can delve deeper into the relationship between SES and other psychological and performance factors. Understanding how socioeconomic backgrounds influence the athletic journey can help create more inclusive and equitable sports programs.

- **Mental Toughness Training:** To improve the mental toughness of female players, targeted mental training programs should be developed. These programs can focus on building resilience, self-confidence, and motivation, enhancing their ability to handle pressure and setbacks effectively.
- **Gender-Inclusive Sports Culture:** Beyond the specific psychological factors, fostering an inclusive and supportive sports culture is essential. Coaches and sports organizations should promote gender equality and encourage a diverse and inclusive environment in which male and female players feel equally valued and supported.
- **Longitudinal Research:** Conducting longitudinal studies can provide deeper insights into how these psychological factors evolve over time and influence players' development and performance. Long-term research can help track changes in aggression, motivation, personality traits, socioeconomic status, and mental toughness, allowing for more targeted interventions.
- **Coach Training:** Coaches should receive training in understanding and managing the psychological aspects of their athletes. This training should include techniques for handling aggression, providing motivational support, recognizing and working with different personality types, and cultivating mental toughness in players.
- **Mental Health Support:** Given the significance of mental toughness in sports, athletes, both male and female, should have access to mental health

resources and support. Coaches and sports organizations can collaborate with mental health professionals to offer strategies and interventions that help athletes maintain their mental well-being.

- **Education and Awareness:** Promoting awareness about the psychological factors and their impact on sports performance and overall well-being is crucial. Athletes, coaches, parents, and sports organizations should be educated about these factors to create a more informed and supportive sporting community.

Incorporating these recommendations into coaching and training programs can contribute to the holistic development of male and female basketball players, optimizing their performance and overall well-being while promoting a more inclusive and equitable sports environment.

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APPENDICES

प्रेषक

जिला खेल अधिकारी,
भिवानी।

सेवा में

प्रभारी
शारीरिक शिक्षा एवं खेल विभाग
गुरूकुल कांगड़ी (सम विश्वविद्यालय),
हिरद्वार।

पत्र क्रमांक खेल-2023/1097 /दिनांक 26/5/23

विषय :- **शोध कार्य हेतु डाटा संकलन करने संबंधी।**

उपरोक्त विषय पर आपके पत्र क्रमांक सं0शा0शिक्षा/2023-24, दिनांक 29.4.2023 के संदर्भ में।

उक्त संदर्भित पत्र के अनुसार आप द्वारा खेल परिसरों में प्रशिक्षण प्राप्त कर रहे खिलाड़ियों का प्रशिक्षण के दौरान डाटा संकलन दिनांक 1.5.2023 से 25.5.2023 तक किया जाना है। अतः आपको 18 व 19.5.2023 को जिला भिवानी के बास्केटबॉल खिलाड़ियों का डाटा संकलित करने की अनुमति प्रदान की जाती है।

26/05/2023
जिला खेल अधिकारी,
भिवानी।

District Sports Office, Sonipat

हरियाणा

Email Address:- dsosnp@gmail.com Phone No. 0130-2222687

सेवा में,

प्रभारी,
शारीरिक शिक्षा एवं खेल विभाग,
गुरुकुल कांगडी समविश्वविधालय,
हरिद्वार।

क्रमांक: 559 दिनांक 17-05-2023

विषयः– शौध कार्य हेतू डाटा संकलन करने बारे।

कृप्या उपरोक्त विषय बारे आपके पत्र क्र0 स0शा0शिक्षा/2023–24 दिनांक 29.04.2023 के संदर्भ में श्री यशवंत सिंह पुत्र श्री जिले सिंह, शौधार्थी को डाटा संकलन हेतू दिनांक 17.05.2023 से 18.05.2023 तक बास्केटबाल खेल प्रशिक्षण केन्द्रो में जाने की अनुमति प्रदान की जाती है। उनसे अपेक्षा की जाती है कि वे SOP का पालन करते हुये अपना शौध कार्य पूर्ण करेंगें।

17/5/23
जिला खेल अधिकारी,
सोनीपत।

पृ0 क्र0 560 दिनांक 17-05-2023

उपरोक्त की एक प्रति **श्री सुरजीत सिंह, बास्केटबाल प्रशिक्षक**, सोनीपत को भेजते हुये निर्देश दिये जाते हैं कि श्री यशवंत सिंह पुत्र श्री जिले सिंह, शौधार्थी का पूर्ण रूप से सहयोग करेगें।

17/5/23
जिला खेल अधिकारी,
सोनीपत। 17/5/23

खेल विभाग, हरियाणा।
कार्यालयः– जिला खेल अधिकारी, हिसार।
महावीर स्टेडियम, हिसार Ph – 01662232842 Email:- dsohissar@gmail.com

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प्रेषित

प्रभारी,
शारीरिक शिक्षा एवं खेल विभाग
Gurukula Kangri (Deemed to be University) हरिद्वार
कमांक–खेल /2023/914 **दिनांक** 11/5/23

विषयः– **शोध कार्य हेतु डाटा संकलन करने के संम्बधी बारे।**

उपरोक्त विषय पर आपके पत्र क्रमांक सं0श0शिक्षा/2023–24 दिनांक 29/04/2023 के संदर्भ गे लिखा जाता है कि आपके द्वारा माहाबीर स्टेडियम हिसार बास्केटबाल मैदान मे दिनांक 01/05/2023 से 25/05/2023 तक किन्ही तीन दिन बास्केटबाल खिलाडियों का डाटा एकत्रित बारे अनुरोध किया गया है। इस लिए आपको लिखा जाता है कि आपको दिनांक 11/05/2023 और 13/05/2023 तक महाबीर स्टेडियम हिसार के बास्केटबाल खिलाडियों का डाटा एकत्रित करने की अनुमति प्रदान की जाती है।

11/5/23
जिला खेल अधिकारी,
हिसार। 11/5/23

जिला खेल अधिकारी,
रोहतक।
E-Mail:- dsortk@gmail.com

सेवा में

प्रभारी,
शारीरिक शिक्षा एवं खेल विभाग,
गुरूकुल कांगडी (सम विश्वविद्यालय),
हरिद्वार।

कमांक खेल–2023/ 956 दिनांक 11/05/2023

विषय शोध कार्य हेतु डाटा संकलन करने सम्बन्धी।

उपरोक्त विषय पर आपके पत्रांक सं0शा0शिक्षा/2023–24 दिनांक 29.04.2023 के सन्दर्भ में।

उक्त संदर्भित पत्र के अनुसार आप द्वारा खेल परिसरों में प्रशिक्षण प्राप्त कर रहे खिलाड़ियों का प्रशिक्षण के दौरान डाटा संकलन दिनांक 01.05.2023 से 25.05.2023 तक किया जाना है। अतः आपको दिनांक 15 व 16.05.2023 को जिला रोहतक के बास्केटबाल खिलाड़ियों का डाटा संकलित करने की अनुमति प्रदान की जाती है।

जिला खेल अधिकारी,
रोहतक।

पृ.कमांक खेल–2023/ दिनांक

उपरोक्त की एक प्रति श्री विकास, बास्केटबाल प्रशिक्षक को भेजकर लिखा जाता है कि आप दिनांक 15 व 16.05.2023 को बास्केटबाल खिलाड़ियों का डाटा संकलन करने में प्रभारी, शारीरिक शिक्षा एवं खेल विभाग, गुरूकुल कांगडी (सम विश्वविद्यालय), हरिद्वार का सहयोग करेंगे।

—Sd—
जिला खेल अधिकारी,
रोहतक।

E:\doc\DSO Rohtakk.doc

Letter 1

प्रेषक

जिला खेल एवं युवा कार्यकम अधिकारी
जीन्द।

प्रभास
शारीरिक शिक्षा एवं खेल विभाग,
गुरूग्राम कांगडी (सम विश्वविद्यालय),
हरिद्वार।

कमांक–खेल–2023 / 1226 दिनांकः– 12/05/23

विषयः– शोध कार्य हेतु डाटा संकलन करने संबंधी।

उपरोक्त विषय पर आपके पत्रांक स0शा0 शिक्षा /2023–24 दिनांक 29.04.2023 के संदर्भ में। उक्त संदर्भित पत्र के अनुसार आप द्वारा खेल परिसरों में प्रशिक्षण प्राप्त कर रहे खिलाडियों का प्रशिक्षण के दौरान डाटा संकलन दिनांक 01.05.2023 से 25.05.2023 तक किया जाना है । अतः आपको दिनांक 17.05.2023 व 18–19.05.2023 को जिला जीन्द के RGKP NANDGARH बास्केट बॉल खिलाडियों का डाटा संकलित करने की अनुमति प्रदान की जाती है ।

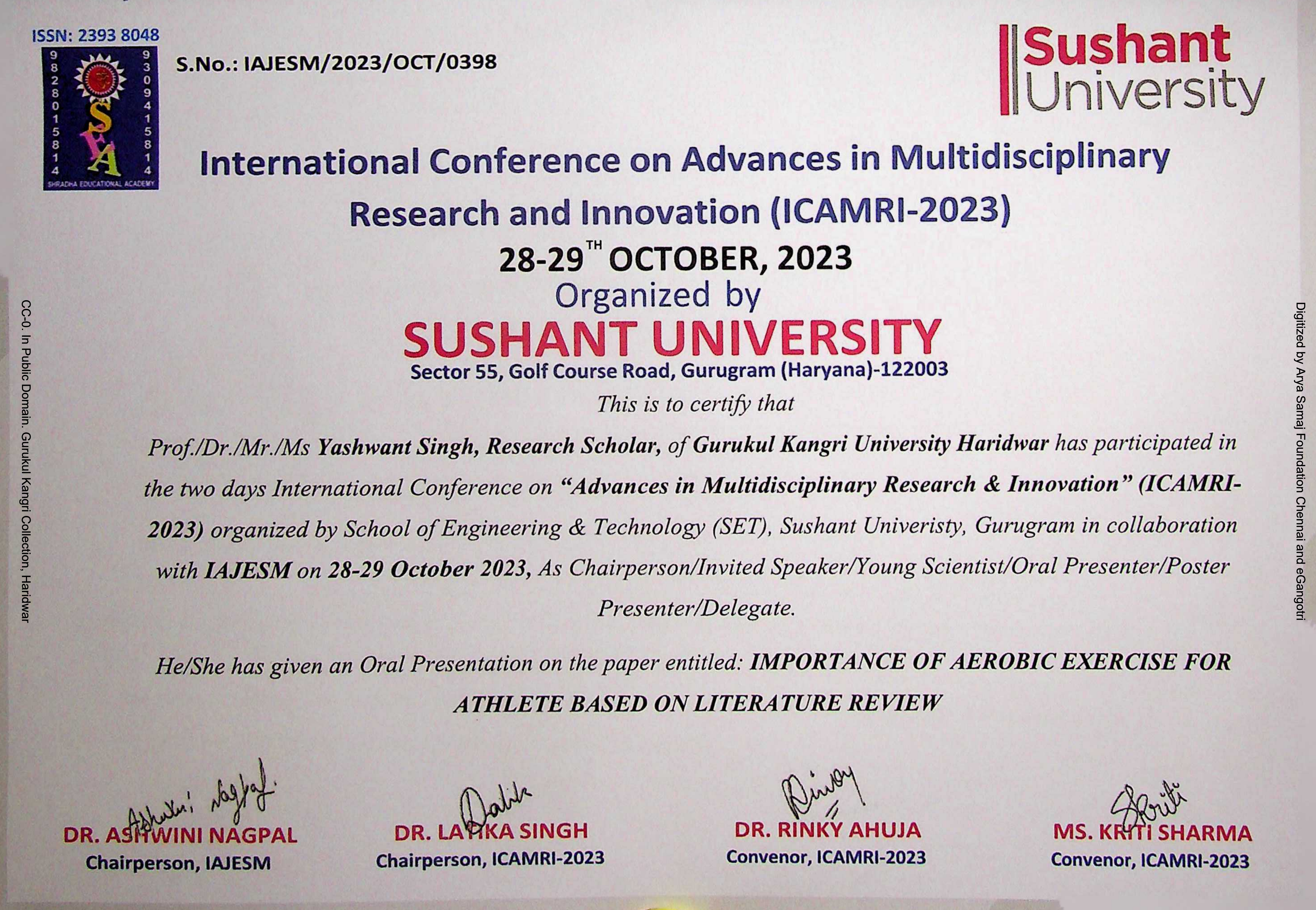
जिला खेल एवं युवा कार्यकम अधिकारी
जीन्द।

कमांक–खेल–2023 / 1227 दिनांकः– 12/05/23

उपरोक्त की एक प्रति श्री अनील कुमार बास्केट बॉल प्रशिक्षण को भेजकर लिखा जाता है कि आप दिनांक 17.05.2023 व 18–19.05.2023 को बास्केट बॉल खिलाडियों का डाटा संकलन करने में शारीरिक शिक्षा एवं खेल विभाग गुरूग्राम कागडी (सम विश्वविद्यालय),हरिद्वार का सहयोग हेतु।

भवदीय

जिला खेल एवं युवा कार्यकम अधिकारी
जीन्द।



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Sushant University

International Conference on Advances in Multidisciplinary Research and Innovation (ICAMRI-2023)

28-29TH OCTOBER, 2023

Organized by

SUSHANT UNIVERSITY

Sector 55, Golf Course Road, Gurugram (Haryana)-122003

This is to certify that

Prof./Dr./Mr./Ms ***Yashwant Singh, Research Scholar,*** *of* ***Gurukul Kangri University Haridwar*** *has participated in the two days International Conference on* ***"Advances in Multidisciplinary Research & Innovation" (ICAMRI-2023)*** *organized by School of Engineering & Technology (SET), Sushant Univeristy, Gurugram in collaboration with* ***IAJESM*** *on* ***28-29 October 2023,*** *As Chairperson/Invited Speaker/Young Scientist/Oral Presenter/Poster Presenter/Delegate.*

He/She has given an Oral Presentation on the paper entitled: ***IMPORTANCE OF AEROBIC EXERCISE FOR ATHLETE BASED ON LITERATURE REVIEW***

Ashwini nagpal		Rinky	Kriti
DR. ASHWINI NAGPAL	**DR. LATIKA SINGH**	**DR. RINKY AHUJA**	**MS. KRITI SHARMA**
Chairperson, IAJESM	Chairperson, ICAMRI-2023	Convenor, ICAMRI-2023	Convenor, ICAMRI-2023

ओ३म्

संस्कृति मंत्रालय MINISTRY OF CULTURE | शिक्षा मंत्रालय MINISTRY OF EDUCATION

नमामि गंगे

SBI pnb

गुरुकुल काङ्गड़ी (समविश्वविद्यालय) हरिद्वार, उत्तराखण्ड

Gurukula Kangri (Deemed to be University) Haridwar, Uttarakhand

Maharshi Dayanand Saraswati | Birth Anniversary 1824-2024

200th Birth Anniversary Celebration of Maharishi Dayanand Saraswati

International Conference

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Veda Vijnana & Sanskriti Mahakumbha

23rd to 25th December, 2023 | मार्गशीर्ष शुक्ल पक्ष द्वादशी से चतुर्दशी वि॰ २०८०

Veda -Vijnana & Sanskriti MahaKumbha
वेद-विज्ञान एवं संस्कृति महाकुम्भ

ऋग्वेद

यजुर्वेद

सामवेद

अथर्ववेद

CERTIFICATE OF PARTICIPATION

This certificate is proudly presented to Prof./Dr./Mr./Ms. Yashwant Singh of Gurukul Kangri (Deemed University), Haridwar for participating and presenting a paper (oral or poster)/ invited talk / key note address / chairing technical session entitled Need and Importance of Value Education in Sports during International Conference on "Veda Vijnana & Sanskriti Mahakumbha" organized by Gurukula Kangri (DU), Haridwar on the auspicious occasion of 200th birth anniversary of Maharishi Dayanand Saraswati Ji.

880

Dr. Gagan Matta
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Veda Vijnana & Sanskriti
Mahakumbha

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Prof. Sunil Kumar
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(Deemed to be University) Haridwar

राष्ट्रहिताय संस्कृतम्

Shodhsamhita
शोधसंहिता

ISSN No. 2277-7067

CERTIFICATE OF PUBLICATION

This is to certify that

Yashwant Singh

For the paper entitled

IMPORTANCE OF AEROBIC EXERCISE FOR ATHLETE BASED ON LITERATURE REVIEW

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in

Shodhsamhita

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Editor-in-Chief

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शोधसंहिता

ISSN 2277-7067
UGC CARE Group 1

IMPORTANCE OF AEROBIC EXERCISE FOR ATHLETE BASED ON LITERATURE REVIEW

Dr. Ajay Malik[1], Yashwant Singh[2]
1.In charge of department of physical education Gurukul Kangri University Haridwar
2.Research Scholar Gurukul Kangri Haridwar university

Abstract

Aerobic exercise is currently the safest sport for both young and old people. This is because aerobic training provides tiered and targeted training and acts specifically on several muscles. The general purpose of aerobic exercise is to train the body to exercise without stress and excessive psychological disturbances. Then, aerobic exercise is also done in stages such as stretching, strength, and balance of various types of muscle and joint flexibility exercises. This is very useful for the elderly to avoid injury during aerobic training and is able to reduce the psychological disorders that are often experienced by the elderly. In this review, we conclude that aerobic exercise can have a good impact especially on stress levels on quality of life in the elderly

Key word: aerobic exercise

Introduction

Aerobic trainings define as physical exercise from low to high intensity that require aerobic energy-generating process. Aerobic training offers multiple benefits for human's body such as general toning of the body, correction of incorrect postures, muscular and bone flexibilities, benefits for the cardiac circulatory and respiratory systems, and other physical benefits.

Regular aerobic exercise has significant cardiovascular benefits, including a reduction in incidence of and mortality from coronary artery disease--probably because of positive effects on blood lipid levels and blood pressure. Aerobic exercise can also be an important adjunct to a weight-loss program. Many persons who continue an exercise program do so because of its positive mental benefits, including reduction in anxiety and depression and modulation of stress levels. Aerobic exercise has a place in the management of diabetes, pregnancy, and aging. The problems associated with aerobic exercise are minimal compared with its benefits.(Mersy DJ 1991)

Aerobic exercise is any physical activity that makes you sweat, causes you to breathe harder, and gets your heart beating faster than at rest. It strengthens your heart and lungs and trains your cardiovascular system to manage and deliver oxygen more quickly and efficiently throughout your body. Aerobic exercise uses your large muscle groups, is rhythmic in nature, and can be maintained continuously for at least 10 minutes

Dr. Yasaswini B. et. al. (2016) studied "Effect of Continuous Endurance Training Versus Intermittent Endurance Training on Aerobic Capacity in Recreational Female Hockey Players a Randomized Control Trail". The present research has been done with the aim of investigating the effect of continuous endurance training versus intermittent endurance training on aerobic capacity in recreational female hockey players of age between 16 – 20 is taken. The research method was randomized control trail with pretest and posttest, and included all recreational female hockey players Sripadmavati degree college in Tirupathi. Methodology: Thirty recreational hockey players participated purposefully and accessible in this study which randomly have been divided into two groups of continuous endurance training and intermittent endurance training. The instrument used to determine VO2max through one field and lab tests field test by name shuttle run test and lab test by name treadmill test. Data analysis method was descriptive statistics (mean and standard deviation) and inferential statistics (t-test and paired t-test) respectively. Results: On performing the paired t-test, there is a statistical significance ($p < 0.00$) is existing between the pre and post intervention values of both the groups. Hence there is a significant improvement is seen in intermittent trained players. Conclusion: Research findings showed improvement of Vo2 max in both the training group but significant improvement is seen mainly in intermittent endurance training than continuous endurance training.

Ozcan Saygın and Mehmet Ali ozturk (2011) conducted a study on the effect of twelve week aerobic exercise programme on health related physical fitness components and blood lipids in obese girls. The aim of this study was to investigate the effects of 12 week aerobic exercise program on health related fitness components and blood lipids in obese girls. In this study, a total of 40 girls were recruited as exercise group ($n = 20$) and control group ($n = 19$). Participants joined sessions for 60 min per day, 3 days per week for 12-week. There were significant differences in weight, body mass index (BMI), flexibility, sit-ups, hand grip for both hands, VO2max, skin fold measurements (thigh, triceps, biceps, abdomen, suprailiac, subscapula, chest, body fat percent, heart rate, high density lipoproteins (HDL), low density lipoproteins (LDL), total cholesterol, and triglyceride between pre-test and post test scores in the exercise group ($p<0.05$) It was concluded that regular aerobic exercise may affect health related fitness components and blood lipids positively in girls. Furthermore, it may result in decreasing obesity in girls.

Gonzalez M. F. et. al. (2016) studied "Effects of Continuous and Interval Training on Running Economy, Maximal Aerobic Speed and Gait Kinematics in Recreational Runners." The purpose of this study was to evaluate the effects on running economy (RE), VO2max, maximal aerobic speed (MAS), and gait kinematics (step length and frequency, flight and contact time) in recreational athletes, with two different training methods, Interval and Continuous. Eleven participants were randomly distributed in an interval training group (INT; n= 6) or continuous training group (CON; n= 5). INT and CON performed 2 different training programs (95-110% and 70-75% of MAS, respectively), which consisted of 3 sessions per week during 6 weeks with the same external workload (% MAS x duration). An incremental test to exhaustion was performed to obtain VO2max, maximal aerobic speed, running economy and gait variables (high speed camera) before and after the training intervention. There was a significant improvement ($p<0.05$) in running economy at 60% and 90% of MAS by the CON group; without changes in gait. The INT group significantly increased MAS as well as higher strides length at 80, 90 and 100% of MAS and lower contact time at 100% of MAS. As expected, training adaptations are highly specific to the overload applied with CON producing improvements in running economy at lower percentage of MAS while INT produces improvements in MAS. The significantly increased stride length and decreased contact time for the INT group is an important outcome of favorable changes in running gait

Conclusion

This review shows that aerobic trainings provide beneficial impacts to human's body by influencing human body systems mainly cardiovascular system, musculoskeletal system, and joint systems. A person who performs regular aerobic trainings will gain benefit both for psychological and physical aspects in short and long term. Overall,

routine aerobic trainings can directly reduce stress levels and increase the quality of life. In this review, we examined evidence in healthy populations supporting links between regular aerobic exercise and specific components of executive functioning, including task switching, selective attention, inhibitory control, and working memory. In older adults, intervention studies indicate that regular aerobic exercise can improve task switching, selective attention, inhibition of prepotent responses, and working memory span. Furthermore, cross-sectional data indicate that aerobic fitness predicts better working memory updating, but further research is needed to determine whether this relationship reflects engagement in exercise.

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SHODHASAMHITA
शोधसंहिता
ISSN 2277-7067
UGC CARE Group 1

EFFECT OF AEROBIC EXERCISE ON MEAN ARTERIAL PRESSURE OF GURUKUL KANGRI UNIVERSITY'S STUDENTS

Dr. Ajay Malik[1] Sikandar rawat[2]

1. In charge of department of physical education Gurukul Kangri University Haridwar
2. Research Scholar Gurukul Kangri Haridwar university

ABSTRACT

Context and Purpose of the study: The main aim of this study is to find effect of Aerobic Exercises on mean arterial pressure of gurukul kangri university students. Considering the mentioned objective, 15 students from department of physical education gurukul kangri university Haridwar, Uttarakhand state, are selected as cases for this study and they are randomly taken into training group. The group has participated in Aerobic Exercises training process continued 16 weeks, with their daily activities.

Results: Tt is evident that there is significant difference in pre- and post-test mean value of mean arterial pressure of gurukul kangri university students. as the obtain t-value is 6.793 which is significant as it is greater than the criterion t value 2.145 required to be significant at .05 level of significance. It may therefore, be concluded that the post-test mean score of mean arterial pressure (94.4737 mmHg.) are significantly higher than the pre-test mean score of mean arterial pressure (98.0667mmHg.) after 16 weak of aerobic training.

Conclusions: Conclusion This study indicates that there was a highly significance difference in of mean arterial pressure between pre-test and post-test among Experimental group of gurukul kangri university students. According to the obtained results, it is concluded that, Aerobics Exercise has a positive effect on our mean arterial blood pressure of 19 to 25 years gurukul kangri university students.

Keywords: aerobic exercises, mean arterial pressure

INTRODUCTION

The body has three energy-producing systems. the immediate (ATP-CP), short-term (glycolysis), and long-term (oxidative phosphorylation) systems. The three energy systems are similar in that they all produce ATP, but they differ in how quickly they produce ATP and in the amount of ATP produced. Two of the three energy systems—the immediate and short-term systems are anaerobic energy systems. In other words, these two energy systems do not require oxygen to produce ATP. In contrast, the long-term energy system is aerobic and requires oxygen to produce ATP. (Ben Reuter 2012 Developing Endurance)

The basic unit of energy within the human body is adenosine triphosphate (ATP). To make things simple, think of a molecule of ATP as an "energy dollar bill." Each of us has millions of molecules of ATP in our body.

AEROBIC TRAINING:

Aerobic exercises usually involve endurance activities which don't require excessive speed. Aerobic exercises refer to those activities that require oxygen for prolonged periods and place such demands on the body that it is required to improve its capacity to handle oxygen. As a result of aerobic exercise, there are beneficial changes that occur in the lungs, the heart, and the vascular system. More specifically, regular exercise of this type enhances the ability of the body to move air into and out of the lungs; the total blood volume increases; and the blood becomes better equipped to transport oxygen. (Kenneth H. COOPER 1985)

aerobic exercise—that is, endurance exercise which takes place over a relatively long time period and depends on establishing a balance between the intake and expenditure of oxygen. (Kenneth H. COOPER 1985)
Aerobic exercise is physical exercise that intends to improve the oxygen system. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy generating process. Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time. (Kum Rousseau Glenn Bard 2016)

BLOOD PRESSURE.

BP is the force exerted on the wall of the blood vessel by the blood.

SYSTOLIC BLOOD PRESSURE.

The peak pressure is referred to as systolic blood pressure. because it is essentially caused by the contraction of the heart (systole).

DIASTOLIC BLOOD PRESSURE.

During the relaxation phase of the cardiac cycle (termed diastole), arterial blood pressure decreases to 60 to 80 mm Hg. During relaxation of the heart (diastole), the arterial walls recoil, maintaining pressure on the blood still in the vessels. Thus, although the BP drops during diastole, there is always some pressure in the arteries, and this lower pressure is known as diastolic blood pressure (DBP).

MEANING OF MEAN ARTERIAL BLOOD PRESSURE

Mean Arterial Pressure. Mean arterial pressure (MAP) is a weighted average of SBP and DBP, representing the mean driving force of blood throughout the arterial system.

Mean arterial pressure (MAP) represents the average pressure exerted by the blood as it travels through the arteries. Since diastole takes about twice as long as systole in a normal cardiac cycle, mean arterial pressure can be estimated from the DBP and SBP as follows:

MAP = 2/3 DBP + 1/3 SBP.

the MAP = 80 + [0.333 (120 – 80)] = 93 mmHg. (W. Larry Kenney,2012 "Physiology of Sport and Exercise")

The Aim of this Study

The aim of this study is to find the effect of 16 weeks of Aerobics Exercise on mean arterial pressure of gurukul kangri university students.

METHOD STUDY SAMPLE STUDY

participants were recruited from department of physical education gurukul kangri university Haridwar, Uttarakhand state. The purposeful sampling method was used to select 15 students aged between 19 to 25 years. Then, the random sampling method was adopted to students in the experimental (N=15) groups.

STUDY METHODS AND PROCEDURES

The study was conducted Every Monday to Saturday, the Aerobics Exercise training was administered from 4:30 p.m. to 5:30 p.m. all subjects does different types of aerobic exercise each day. The random sampling method helped to students in the experimental (N=15) groups, and all students went through a pre-test of mean arterial pressure. Students in the experimental group were then provided with 16 weeks of Aerobics Exercise training. A post-test of mean arterial pressure was performed after the 16-week training intervention.

RESULTS

Tt is evident that there is significant difference in pre- and post-test mean value of mean arterial pressure of gurukul kangri university students. as the obtain t-value is 6.793 which is significant as it is greater than the criterion t value 2.145 required to be significant at .05 level of significance. It may therefore, be concluded that the post-test mean score of mean arterial pressure (94.4737) are significantly higher than the pre-test mean score of mean arterial pressure (98.0667) after 16 weak of aerobic training.

Table 1: Table Shows the Mean, Standard Deviation and 't'- value of Pre-test and Post–test for Aerobic Exercise training Experimental Group on mean arterial pressure performance.

variable	test	N	Mean	SD	t-Value
	Pre-test	15	98.0667	7.11604	6.793
	post-test	15	94.4737	6.08320	

The level of significant 0.05=Table value =2.145

This clearly implies mean arterial pressure significantly increases as result of aerobic training. The graphical representation of pre-test and post-test mean of mean arterial pressure is shown in Graph.

The graphical representation of pre-test and post-test mean of mean arterial pressure

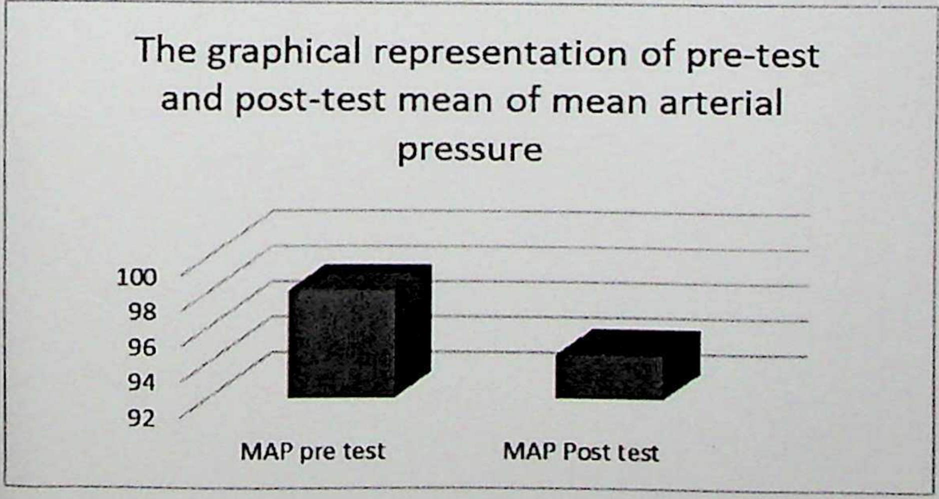

Figure is Showing the Mean, Standard Deviation and ‘t’- value of Pre-test and Post–test for Aerobic Exercise training Experimental Group on mean arterial pressure

Conclusions

Conclusion This study indicates that there was a highly significance difference in of mean arterial pressure between pre-test and post-test among Experimental group of gurukul kangri university students. According to the obtained results, it is concluded that, Aerobics Exercise has a positive effect on our mean arterial blood pressure of 19 to 25 years gurukul kangri university students.

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